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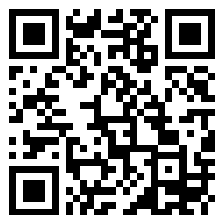


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Eimer

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ASSAY AND
METALLURGICAL
LABORATORY
SUPPLIES



EIMER & AMEND
NEW YORK

1. ~~Quarrying~~
2. ~~metallurgy~~
T.D.

JUNE 1909

ESTABLISHED 1851

INCORPORATED 1897

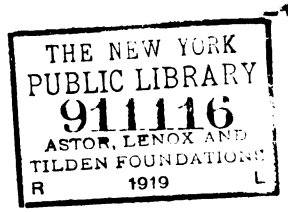
Illustrated Catalogue
of
**Assay and Metallurgical Laboratory
Supplies**



EIMER & AMEND
205, 207, 209 and 211 Third Avenue
NEW YORK, U. S. A.

CABLE ADDRESS: EIMERAMEND, NEW YORK

A-B-C CODES USED



NEW YORK
PUBLIC
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PREFACE

In presenting the fifth edition of our Assayer's Supplies Catalog, we have endeavored to concisely list only the most approved and generally used supplies of the highest quality, and improved labor saving devices, required by the Assayer and Metallurgist.

We wish to particularly point out that we carry a stock of many other types of the articles listed, which are illustrated and listed in our complete and comprehensive Chemical Apparatus Catalog, which on application, we are glad to send to prospective clients.

The well recognized facilities and advantages of shipping from the port of New York, prompts us to keep on hand, besides our own standard goods, a complete assortment of labor saving devices made by the foremost western manufacturers, which we supply at the same prices as are quoted F. O. B. western points.

When ordering direct or through a commission house, please do not fail to mention our catalog number and size of the article required.

Our terms are F. O. B. New York, net, cash within 30 days.

Orders from parties unknown to us should be accompanied by cash or satisfactory business references.

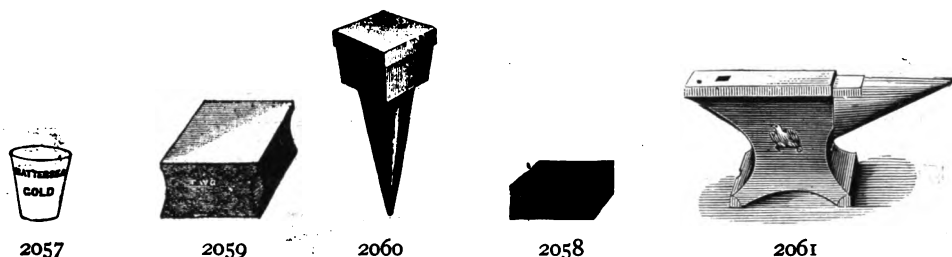
We avail ourselves of this opportunity to thank our numerous clients in all parts of the world for their patronage, and to assure them that it is our constant endeavor at all times to give inquiries and orders our very careful attention.

CABLE ADDRESS
EIMERAMEND, NEW YORK
A.B.C. CODES

JUNE, 1909

EIMER & AMEND

ASSAYER'S SUPPLIES CATALOG



—* 2057. Annealing Cups, Battersea, perfectly smooth and of correct porosity.

No.	A.	B.	C.	D.
Diameter on top,	1 1/8	1 1/4	1 1/2	1 3/4
Price, each,	.10	.10	.10	.10
Dozen,	\$1.05	1.05	1.05	1.05

○ 2051-I. Annealing Cup Covers, extra, per dozen..... \$0.301

* 2058. Anvil, for blow-pipe analysis, Plattner's.

Small .....	.50
Large .....	.60

* 2059. Anvils, flat, cast steel, polished face.

1	1 1/2	2	2 1/2	3	4 inch.
\$0.65	1.00	1.30	1.70	2.00	2.60

—* 2060. Anvils, with point, to set in table, polished face.

1 1/2	2	3	4	5	6 inch.		
1 1/2	3	7	18	32	44 lbs.	Per lb.,	.50

○* 2061. Anvils, heavy, for general use.

	8	20	30	50 lbs.
Length of face,	5 1/2	6 1/4	7 1/4	8 3/4 inch.
	\$3.50	4.00	4.30	5.00

2069. Asbestos Board, fire and acid proof, in sheets 40x40 in.; from 1-32 to 1/2 in. thick, weighing from 1 1/4 to 28 lbs. per sheet. Per lb... .15

Approximate weight per sheet 40x40 inches.

Thick,	1-32	1-16	3-32	1/8	3-16	1/4	3/8	1/2 inch.
Weight,	1 1/4	4	5 1/2	7 1/2	10 1/2	14	21	28 lbs.

2070. Asbestos Board, 1-16 inch thick, cut in squares.

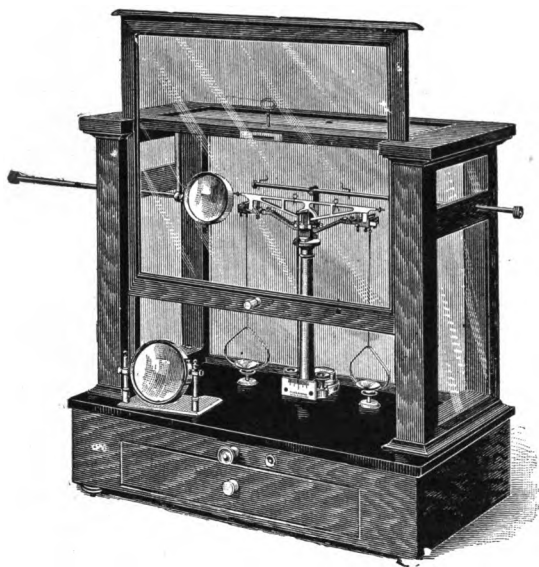
4x4	5x5	6x6 inches.
\$0.35	.50	.65 per dozen.

○ 2071. Asbestos Twine, in 1 lb. balls; for suspending retorts, crucibles, etc., in contact with fire, and for insulation.

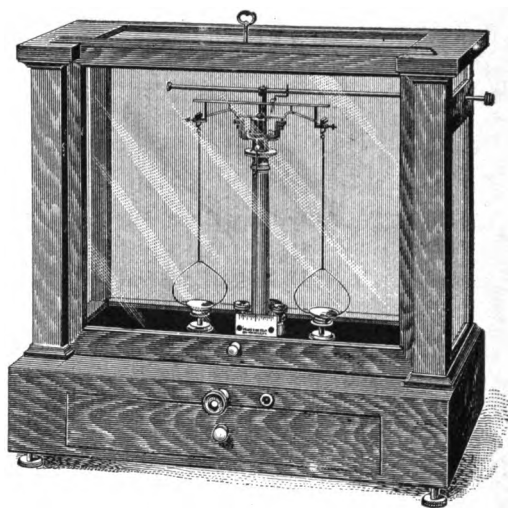
Diameter,	1-16	1/8 inch.
Per lb.,	\$1.15	1.00

2072. Asbestos, Paper, per sheet, 5 cts. Per lb20

BALANCES, ASSAY



2112



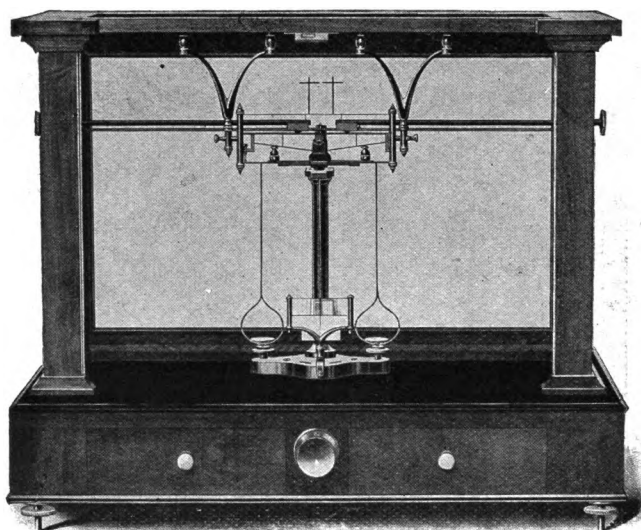
2114

- * 2112. Balance, Assay, Eimer & Amend's Short Beam, mounted on glass base plate, hangers and pans of aluminum; other metal parts gold-plated; agate knife edges and planes; adjustable magnifying lenses for reading the graduations on beam and ivory scale. Distinctly sensitive to 1-200 milligramme, and quick weighing. This modern Assay balance, on account of its extreme sensitiveness and careful construction, has given the greatest satisfaction wherever used, and we confidently invite comparison with the best made by other manufacturers..... \$125.00

- 2113. Specially tested set of Assay Weights for the above balance, 1 gramme to 1-10 milligramme and riders..... 10.00

We have supplied this type of balances to a great many Assayers.

- * 2114. Balance Assay, Eimer & Amend's latest form, shortest and lightest beam, sensitive to 1-100 milligramme, knives and bearings of agate, very accurate and quick weighing..... 100.00



2116A

○*2116a. AINSWORTH TYPE C. PRECISION BUTTON BALANCE

For particularly accurate weighings, such as control and umpire assays, and for scientific laboratories where the utmost accuracy is required.

We can also recommend this balance for the rapid handling of a large volume of particularly accurate work when adjusted to a sensibility of about 1-200 mg.—1-13000 grain.

The beam is of a special alloy, unobstructed on top, so that the rider may be placed at any point, and has 50 divisions each side of the center, each division representing 1-50 milligramme, with a 1 milligramme rider or 1-100 with a $\frac{1}{2}$ milligramme rider. Has improved star wheel adjustment, and cylindrically ground glass for reading divisions.

All edges and bearings are of specially selected agate accurately ground and polished by improved machinery.

Has fall-away pan-rests and skeleton hangers of hard drawn German silver wire.

The rider apparatus is of improved design, and so constructed that there are no metal surfaces in contact with one another. It always works smoothly and it is never necessary to use a lubricant. The base is of improved design and contains center rod and pan rest bearings. This construction preserves the alignment of the working parts, regardless of any warping of the case, and the entire mechanism can be taken out for cleaning by removing three screws.

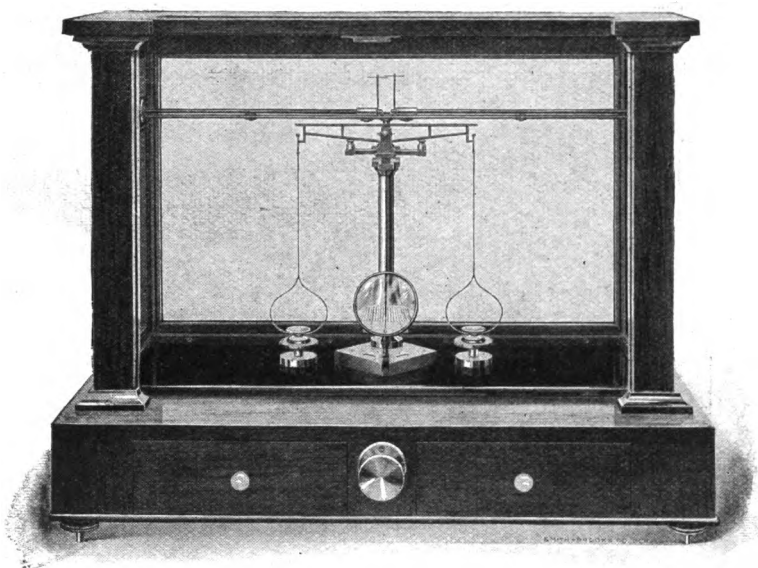
All metal work is gold plated. A plate-glass sub-case covers the entire top of base, and the case is of thoroughly seasoned mahogany throughout and as nearly dust proof as it can be made.

In the engraving the counterpoised sliding door has been removed to better illustrate the balance.

Dimensions, 20x17x10 inches—50x43x25 centimeters.

Weight packed, 50 pounds.

Price\$300.00



2116b

O* 2116b. AINSWORTH TYPE H. PRECISION BUTTON BALANCE

An excellent button balance for ordinary button weighings with all the latest improvements, including improved rider apparatus and fall-away pan-rests. Has agate edges and bearings and star-wheel adjustment.

The beam has 50 divisions each side of the center reading to 1-50 milligram with a 1 milligram rider, or to 1-100 milligram with a 1-2 milligram rider and being unobstructed on the top, the rider may be placed at any point from 0 at the center to the last division, which is directly over the end edge and represents the full weight of the rider used.

Has French polished mahogany case of thoroughly seasoned mahogany, with counterpoised sliding door and plate-glass sub-base.

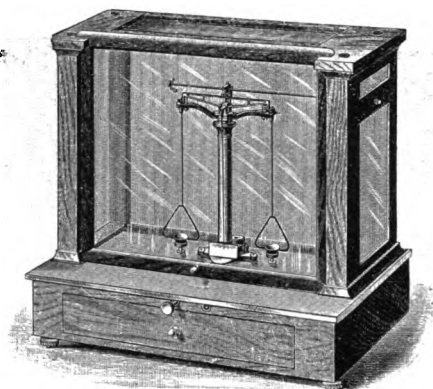
Dimensions, 20x17x10 inches—50x43x25 centimeters.

In the engraving the counterpoised sliding door has been removed to better illustrate the balance.

Dimensions, 27x21x15 inches—68x53x38 centimeters.

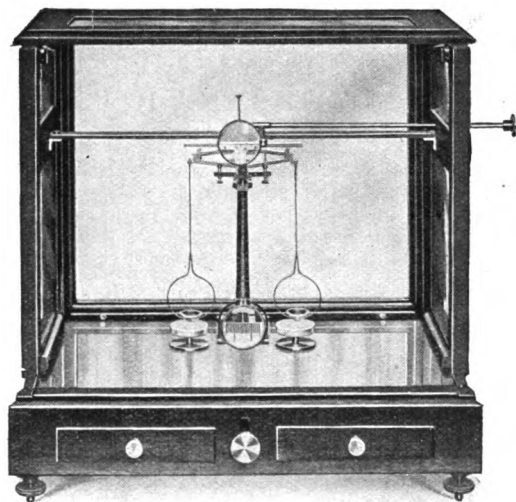
Weight packed, 50 pounds.

Price \$135.00



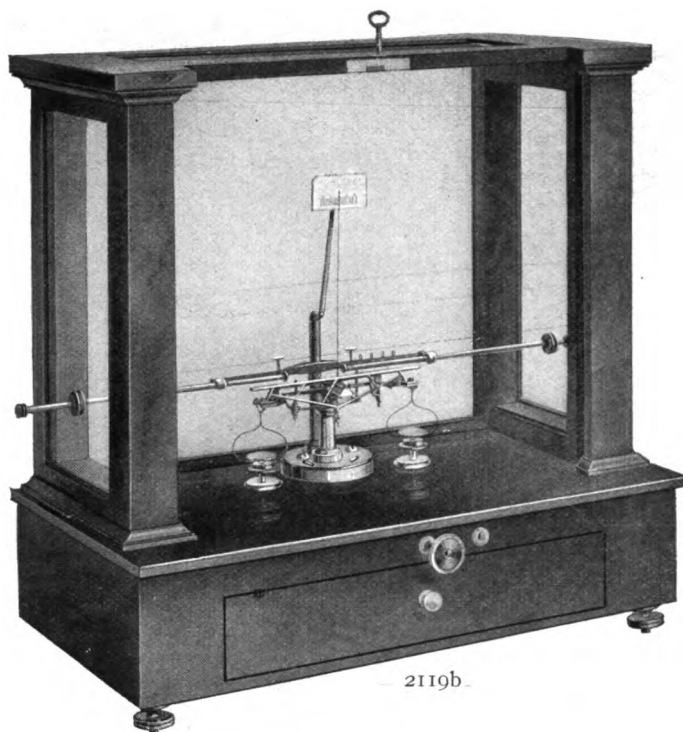
2117

- * 2117. Balance, Assay, Becker's, No. 4, short beam; polished mahogany and glass case, with glass top to admit more light on rider; mounted on plate glass 5-16 inch thick. All bearings are agate planes with agate knife edges, and the beam is graduated in 1-50 milligramme and in such a manner that the rider can be placed on the center of the beam and used from the O point to either end of the beam. Needle deviates 50 divisions on the scale for one milligramme. 135.00
- Ditto. With Aluminum Beam, Bows, Pans, etc. 145.00



2118

- * 2118. Balance, Assay, Troemner's, No. 04, gold plated, sensibility, 1-500 of a milligramme. The beam is 4 inches long, the divisions are white, making it clear and easy to read. It has 100 full divisions each side of center knife and is provided with a specially ground reading glass. The rider carriage, which is operated from the right side, has full, clear sweep. All bearings and edges are of "Agate." New improved arrangement for balancing beam, rapidly and of extreme sensitiveness. A reading glass is provided for the ivory index and beam, adjustable at any angle, or can be dropped entirely out of the way. All the metal parts of the balance are gold plated. The glass sub-base is of black plate glass. The case is of the following dimensions: 15 inches high, 16½ inches wide, 9½ inches deep. 250.00



THE TWENTIETH CENTURY LEADER

○* 2119b. This Balance is of the dwarf-column, fallaway type, with triple movement.

In releasing, beam with eccentric key arrests for hangers are released first, then the stirrups from supports, and finally the beam itself is let down on its bearings. In bringing the beam back to rest again, the arrests come in contact with the hangers first, and until the beam and stirrups rest in their supports, thereby preventing the sliding of centre-knife on its bearing or the stirrups on the end knives.

All metal parts not oxidized, are heavily gold plated, making a very handsome instrument.

The beam is of truss style 5 in. long (12.7 Cm.) from end knife-edge, and is made of a hard rolled alloy, lighter than aluminum, having as great a rigidity as steel. The beam is not affected by magnetism, temperature, or other tendencies that are supposed to affect the beam of a fine assay balance. All knife-edges are agate. The beam is divided into one hundred parts from a point ten divisions out of the center to each end.

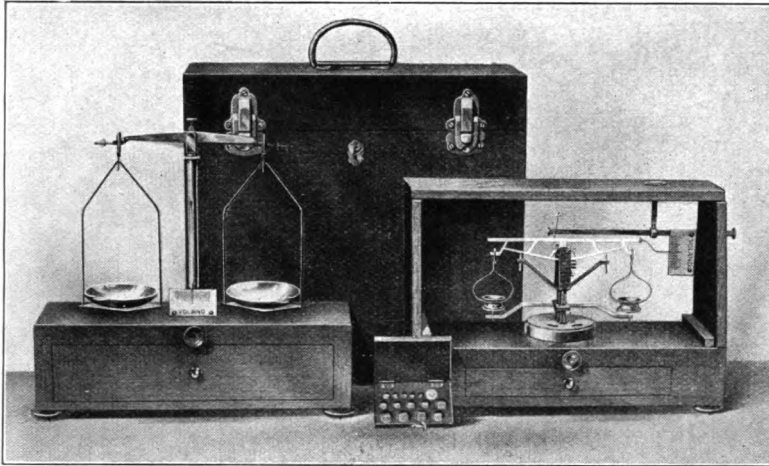
Magnifier furnished to read graduations on the beam.

The arrangement for carrying the riders on this balance is of the simplest construction and will remain in permanent adjustment. To the rear of the rider carrier on both sides is a bar, oxidized black, containing notches marked in white as follows: $\frac{1}{2}$ and 1, for which, corresponding milligramme riders are furnished. With the use of rider carrier these riders can be lifted from the beam to their respective notches, doing away with the use of forceps, and riders will always retain their accuracy and shape.

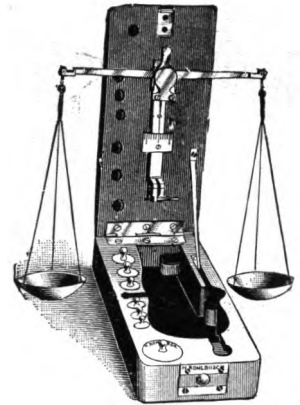
The pointer or indicator points upward, and for 1-20 mgrm. indicates five divisions.

The case, measuring $16\frac{1}{2}$ inches long, $15\frac{1}{2}$ inches high, and 9 inches wide, is made of old mahogany, French polished, with glass in top and front door is counterpoised. It is made as nearly air tight and dust proof as is possible, and is mounted on black glass plate base.

The front sliding door is omitted in cut to better illustrate the balance.
Gross shipping weight, 50 pounds. Price \$300.00



2119c



2120

E & A PORTABLE OUTFIT "A"

○* 2119c. Both Balances of this outfit are of the lightest possible construction. The Assay Balance is of the non-column type double fallaway movement, and in releasing the beam the hangers are released first, and then the beam is lowered on its agate bearings.

The beam is made of a hard rolled metal, and is 5-in. long from end knife edge to end knife edge. All knife edges are agate. Beam is graduated into fifty divisions to the right and rider can be used from the zero point. The pointer or indicator is at the right end of beam in a direct line with the knife-edge, making one complete oscillation in ten seconds. The beam is provided with star wheel adjusters fitted in the centre.

Balance has a sensibility of 1-100 mgrm.

The hangers and stirrups are made of German silver, stirrups being jewelled and of the lightest possible construction. The balance is provided with a locking device for the beam and eccentric movement, and the operator can, by simply throwing a clutch, lock both; and beam can remain on its support, during transportation without becoming injured.

The case for this balance is made of old mahogany, French polished, with front sliding door. The drawer is large enough to receive the hangers, weights, key, and other small articles the operator may use.

The Pulp Balance is very compact, the beam is five inches long, pans 2½ inches diameter, capacity 150 grammes, sensitive to one mgrm. It is set up on a mahogany French polished box with drawer into which all parts of same can be packed.

The carrying case is made of mahogany, and the dimensions are 12½x11½x6 (31.8x29.3x15.2 Cm.), and weighs 9½ lbs., (4.2 kilos) complete with balance.

Provided with one set of weights, 1 grm. down to 1-10 mgrm., and one set of A. T. weights, one A. T. down to 1-20 A. T.

Price \$103.00
Price, with beam of Assay Balance graduated to both ends 108.00

E & A PORTABLE OUTFIT "B"

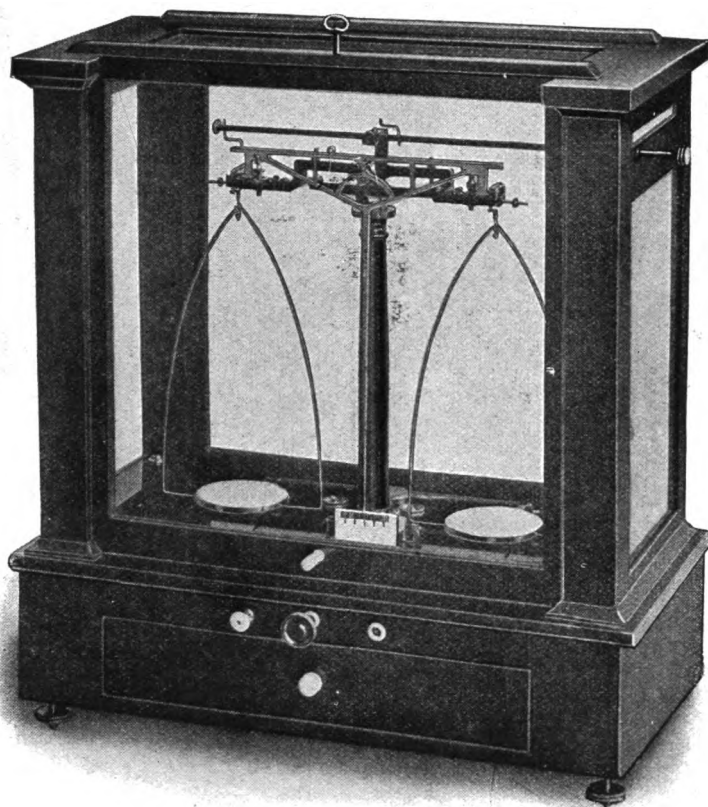
This outfit consists of Portable Assay Balance as described in outfit "A."

Carrying case measures 12½x8½x6 inches (31.8x21.6x15.2 Cm.), and weighs 5½ lbs. (2.5 kilos) complete with balance.

Provided with set of weights, 1 grm. down to 1-10 mgrm.

Price \$85.00
Price, with beam graduated to both ends 90.00
Price, with beam graduated to both ends and sensitive to 1-200 mgrm. \$115.00

—* 2120. **Balance, Assay, Pocket;** shows 4 divisions for 1 milligramme.
Complete in case with weights 10 grammes to 1 milligramme... 18.00



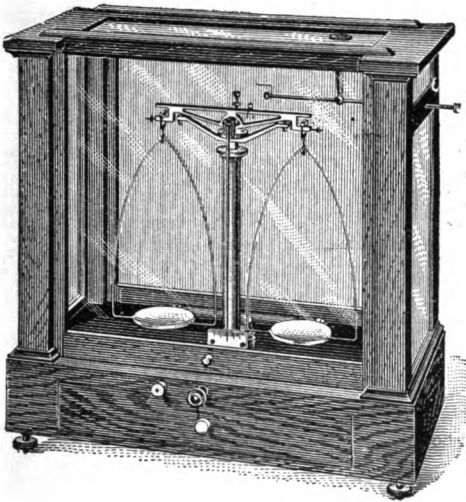
2087

BALANCES, ANALYTICAL

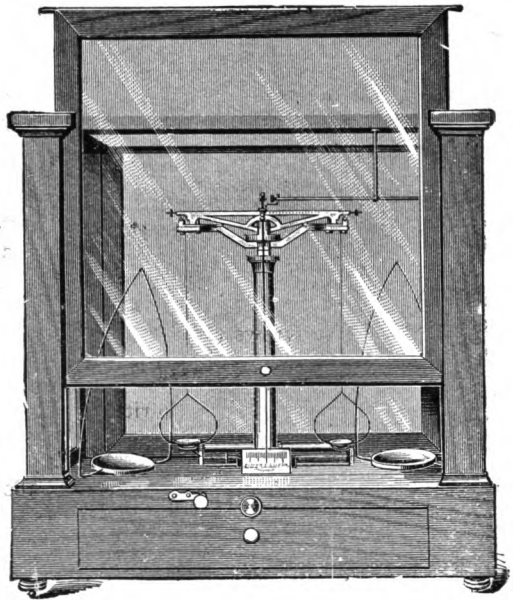
- * 2087. **Balance, Analytical, Eimer & Amend's gold plated short beam,** for a charge up to 200 grammes in each pan, and sensitive to 1-20 milligramme. In polished mahogany and glass case; mounted on a black glass base plate, which has the advantage, compared with colorless glass, that small fraction weights when dropped can easily be located; agate knife edges and bearings; beam is graduated to 1-10 milligramme, and in such a manner that the rider can be placed on the center of the beam, and used from the zero point to either end of the beam. Pans $2\frac{3}{8}$ inches diameter, width of pan support 4 inches. This is the well known Dutch type with improvements indicated above. \$125.00

Balance 2087 will be provided with aluminum beam at no increase in price.

- *○ 2088. **Balance, Analytical, Eimer & Amend's aluminum short beam** carries 100 grammes in each pan and is sensitive to 1-10 milligramme; agate knife edges and bearings, extra wide bows and pans to take a 4 inch dish; improved arrest for pans, with automatic stop; in fine mahogany case, with glass top, of best American workmanship. (See illustration page 13.) 48.00



2088



2091

- 2089. Balance No. 2088, including set of accurate, non-corrosive, analytical weights, from 50 grammes to 1 milligramme, the large weights down to 1 gramme being platinum plated, and the smaller ones and riders of solid platinum, in box with hinged or loose cover \$60.00

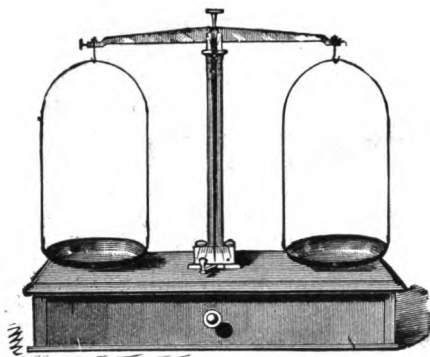
We claim for this balance that it is by far the best value ever offered for the money, and in proof, we have sold over 3000 since it was put on the market a few years ago, and not one has ever failed to give entire satisfaction.

- 2090. Balance, Analytical, similar to No. 2088, with improved hangers and triple arrest, raising the hangers from knife edges, as well as the beam; sensibility, 1-20 milligramme. This improvement makes the balance in all respects equal to those usually listed at \$95.00 65.00

If the increase in price is not so much an object, we recommend this balance in preference to No. 2088, as it is well worth the difference.

- * 2091. Balance, Analytical and Assay combined; like No. 2090, but with an additional set of bows and pans for assay work; sensibility, 1-20 milligramme. A very economical balance for smaller laboratories doing both general analytical and assay work, and where it is wished to avoid the expense of two balances, net... 75.00

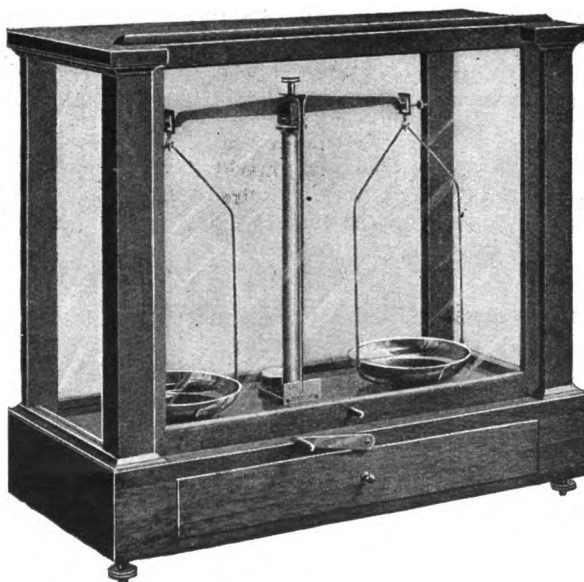
BALANCES, PULP



2121

- * 2121. Balance, smaller sizes sensitive to 1-50 grain (1 milligramme), and larger sizes to 1-20 grain; on polished mahogany box, with leveling screws (not illustrated); best balance made for general laboratory work, assaying, etc. All except two smallest sizes are provided with spirit level.

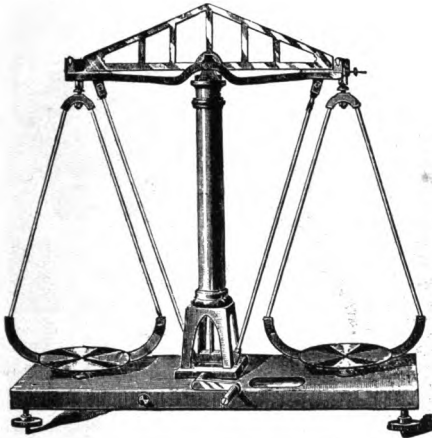
To weigh,	3 oz. or	6 oz. or	10 oz. or	20 oz. or	50 oz. or
	75 grm.	180 grm.	300 grm.	600 grm.	1500 grm.
	\$12.00	\$17.00	\$20.00	\$24.50	\$29.00



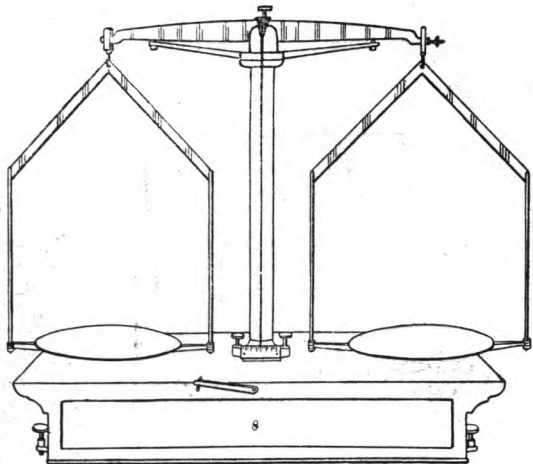
2122

- * 2122. Ditto, in glass case, 22.00 25.00 28.50 38.00 45.00

BULLION BALANCES

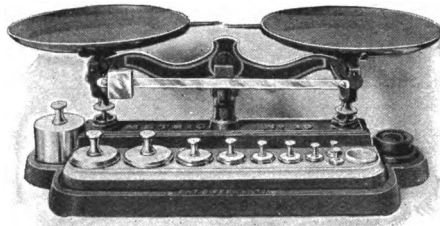


2127a



2126

- * 2126. **Balance, Troemner's Bullion No. 175**, will carry 2000 ounces in each pan; open brass beam, pans and arches also of brass, complex, levers to arrest the beam and its hangings; platform is of iron, japanned; adjusting screws on beams; glass level and leveling feet; sensible to 1-200 of an ounce; price, without weights .. \$210.00
- 2127. **Ditto**. Capacity 500 ounces in each pan, sensitive to 1 gram..... 160.00
- * 2127a. **Balance Bullion**, for 100 ounces in each pan, sensitive to 1 grain
 with that charge 49.50
 Ditto, for 300 ounces 66.00

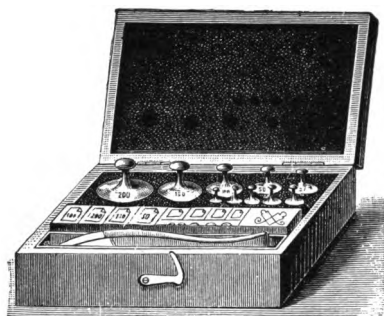


2145

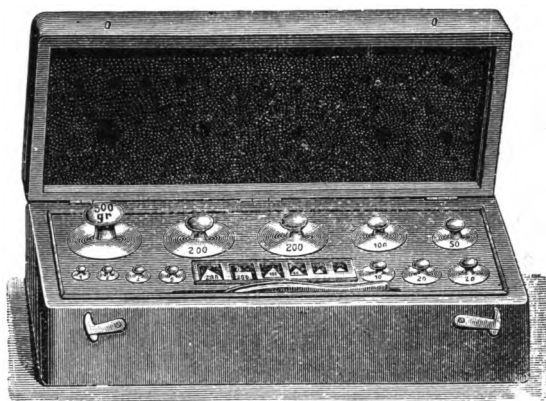
- * 2145. **Balance, Metric Solution Scale**, movable brass pans, side beam in front, undivided, with sliding weight for balancing the bottle or container; sensibility, $\frac{1}{2}$ gram; including set of brass weights. Diameter of pans, $5\frac{1}{2}$ inches, capacity, 1 kilo 15.00

WEIGHTS, ANALYTICAL, No. 1 Quality.

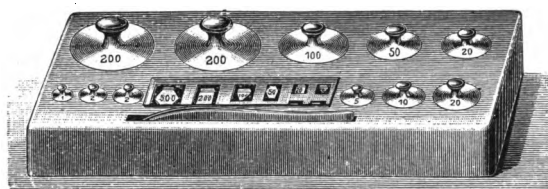
Adjusted to the utmost accuracy. In polished boxes, lined with velvet, every piece fitted separately, brass weights lacquered, the fractions of the gramme are platinum, except below 20 milligrammes, which are made of aluminum. Prices include riders, unless otherwise specified, and forceps.



2185 and 2187



2199



2198

WEIGHTS, ANALYTICAL—First Quality

- 2180. Set, one gramme to 1 milligramme, all of aluminum; riders extra 5.00
- 2181. Set, one gramme to 1 milligramme, all of platinum, riders extra 9.00
- 2182. Set, one platinum gramme to 1-10 milligramme; riders extra 11.00
- 2183. Set, ten grammes to 1-10 milligramme; riders extra 12.00
- * 2185. **Weights, Analytical, Our Own Make, first quality.**
 Set, 1 milligramme to 20 50 100 200 500 1000 grammes.
 Per set, \$9.00 12.00 14.00 18.00 24.00 32.00
- * 2187. **Weights, Analytical, Gold Plated, in box with hinged cover, first quality.**
 Set, 1 milligramme to 50 100 200 500 1000 grammes
 Per set, \$17.50 20.00 26.50 31.00 42.00
- 2188. **Weights, Analytical, one thousand-grain piece to 1-100 grain, with three riders, first quality, Becker's make. Per set.....** 18.00
- 2188a. **Ditto, our own make. Per set.....** 14.00
- 2189. **Weights, Analytical, 1-100 grain to 1 2 10 ounces Troy**
 Per set, \$8.00 10.00 15.00
- 2192. **Weights, Riders, single** $\frac{1}{2}$ 1 1.2 2 6 10 12 milligrammes
\$.50 .40 .40 .40 .25 .25 .25 each

— 2196-1. **Weights, Assay Ton.**

The **Assay Ton Weights** were introduced by Prof. Dr. C. F. Chandler, School of Mines, Columbia University, New York, where they are now in use for convenience of the assaying of ores. The weight denominated by Dr. Chandler

ONE "AT" = 29.166 grams

and contains consequently as many milligrammes as there are Troy ounces in a ton Avoirdupois of 2000 pounds—therefore if one A. T. of ore assays one milligram, the ton contains one ounce Troy.

1-20 AT to	4AT.	2AT.	1AT.
Per set	\$6.00	4.50	3.00

- * 2196-2. **Balance Pans**, glass, without handles (balanced watch glasses), accurately adjusted for analytical work. $2\frac{1}{2}$ or 3 inch diameter. Per pair..... **.75**

WEIGHTS OF SECOND QUALITY

Weights, of best German make. These weights come between the analytical and the common weight and are recommended where some accuracy is desired.

- * 2198. In polished wooden block, the smaller weights under glass cover. (See illustration page 16.)

1 milligramme to	20	50	100	200	500	1000 grammes.
Per set,	\$1.75	2.00	2.50	3.50	5.00	7.50

- * 2199. In polished wooden, velvet-lined cases. (See illustration page 16.)

1 milligramme to	20	50	100	200	500	1000 grammes.
Per set,	\$3.00	3.50	4.50	6.00	7.50	10.00

Above weights are suitable for balances Nos. 2121 and 2122.

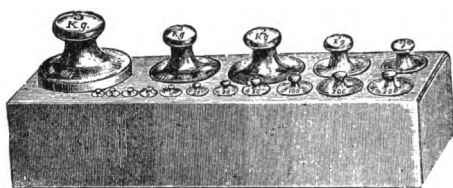
- 2200. **Weights**, in polished mahogany box, velvet lined.

Set, 1000 grains to 1-10 grain	\$7.75
Ditto, $\frac{1}{4}$ grain to 1 2 5 10 20 50 100 ounces	
Per set,	\$4.00 5.50 8.00 10.50 13.50 17.50 26.50

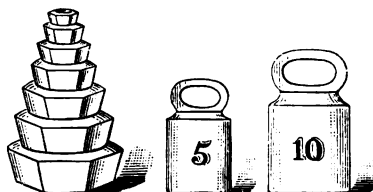
BRASS TROY WEIGHTS

- 2200a. **Brass Troy Weights**, lacquered, in mahogany boxes lined with velvet.

One ounce and down to $\frac{1}{4}$ grain	\$3.50
Two two-ounce pieces and down to $\frac{1}{4}$ grain	6.25
Five-ounce piece and down to $\frac{1}{4}$ grain	7.75
Ten-ounce piece and down to $\frac{1}{4}$ grain	10.00
One twenty-ounce piece and down to $\frac{1}{2}$ grain	15.00
One fifty-ounce piece and down to $\frac{1}{2}$ grain	20.00
Two one-hundred-ounce pieces and down to 1 grain	30.00
Two-hundred-ounce piece and down to 1 grain	40.00
Two five-hundred-ounce	45.00



2204

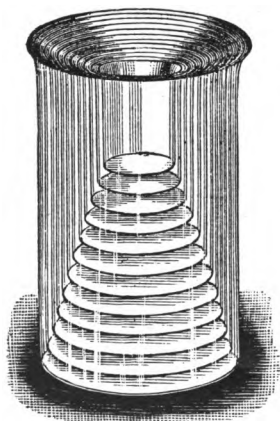


2205

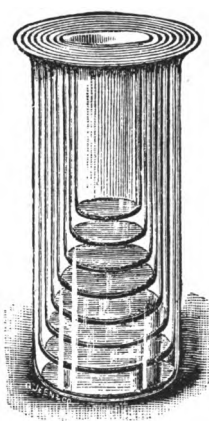
WEIGHTS FOR COARSE WEIGHING

- 2203. **Weights, brass, in covered wooden box.**
- | | | | |
|-------------------|--------|------|-------------|
| .01 up to | 20 | 50 | 100 grammes |
| Per set | \$.90 | 1.10 | 1.30 |
- * 2204. **Weights, brass, in polished wooden block.**
- | | | | | | |
|-------------------|--------|---------------|------|------|----------|
| 1.0 up to | 200.0 | $\frac{1}{2}$ | 1 | 2 | 5 kilos. |
| Per set | \$1.50 | 2.15 | 3.00 | 7.00 | 18.00 |
- * 2205. **Weights, of iron, hexagon in shape, except two largest.**
- | | | | | |
|--------------------|--------|------|------|-----------|
| Ten grammes up to | 1 | 2 | 5 | 10 kilos. |
| Per set, | \$1.25 | 2.00 | 3.50 | 6.00 |
- Prices quoted on application for single weights of any grade.
- 2206. **Weights, brass, in wooden block.**
- | | | | |
|-------------------|--------|------|-----------|
| 1-16 oz. up to | 1 | 2 | 4 pounds. |
| Per set | \$2.25 | 3.00 | 5.25 |

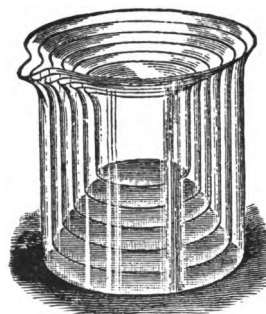
BEAKERS, BEST BOHEMIAN GLASS



2260-2271



2273-2275



2276-2284

From the factory of Joseph Kavalier, Sazava.

The Beakers from this well known manufacturer are produced by wood gas firing, and are very superior, being made from potash glass of a quality least affected by chemicals and heat.

We call attention to the fact that our numbers for Beakers are the original Bohemian. We mention this because some firms changed the numbers, listing the regular No. 0 as No. 1, etc.

We would also remind our customers that much of the so-called Bohemian ware is nothing but a cheap German glass, which can of course be sold at a much lower price.

2260.	No. 000 to 0,	3 in nest.	Capacity, $\frac{1}{2}$ to $1\frac{3}{4}$ ounces.	Price per nest	\$.18
2261.	" 1 " 3,	3 "	" $2\frac{1}{2}$ to 7 "	" "	0.35
2262.	" 1 " 4,	4 "	" $2\frac{1}{2}$ to 10 "	" "	0.55
2263.	" 1 " 5,	5 "	" $2\frac{1}{2}$ to 15 "	" "	0.70
2264.	" 0 " 5,	6 "	" $1\frac{3}{4}$ to 15 "	" "	0.80
2265.	" 1 " 6,	6 "	" $2\frac{1}{2}$ to 22 "	" "	1.00
2266.	" 00 " 6,	8 "	" 1 to 22 "	" "	1.20
2267.	" 1 " 8,	8 "	" $2\frac{1}{2}$ to 40 "	" "	1.60
2268.	" 00 " 8,	10 "	" 1 to 40 "	" "	1.80
2269.	" 00 " 10,	12 "	" 1 ounce to 6 pints.	" "	3.00
2270.	" 000 " 12,	15 "	" $\frac{1}{2}$ " to 1 gallon.	" "	3.65

* 2271. Beakers, usual form, single, Best Bohemian.

No.	000	00	0	1	2	3	4	5	6	7	8	9	10	11	12
Capacity,	$\frac{1}{2}$	1	$1\frac{3}{4}$	$2\frac{1}{2}$	4	7	10	15	22	30	40	60	80	100	130 oz.
Price,	\$.05	.07	.08	.10	.12	.17	.22	.25	.30	.35	.40	.55	.65	.75	.90

2272. Beakers, usual form, with lip, same prices as above.

Beakers, extra tall, Best Bohemian, nested.

* 2273.	No. 1 to 6,	6 in nest.	Capacity, 6 to 43 ounces.	Price per nest,	\$1.50					
2274.	No. 1 to 8,	8 in nest.	Capacity, 6 to 80 ounces.	Price per nest,	2.40					
* 2275.	Single.	No.	1	2	3	4	5	6	7	8
			\$0.15	.20	.25	.30	.35	.45	.50	.60

Beakers, Griffin's, low, wide shape, with lip. Best Bohemian, nested.

2276.	No. 000 to 0,	3 in nest.	Capacity, $\frac{1}{2}$ to 3 ounces.	Price per nest,	\$.25
2277.	" 1 " 2,	2 "	" 5 to 8 "	" "	.30
2278.	" 1 " 3,	3 "	" 5 to 12 "	" "	.50
2279.	" 1 " 4,	4 "	" 5 to 20 "	" "	.80
2280.	" 1 " 5,	5 "	" 5 to 25 "	" "	1.10
2281.	" 1 " 6,	6 "	" 5 to 40 "	" "	1.50
2282.	" 1 " 8,	8 "	" 5 to 70 "	" "	2.50
2283.	" 000 " 12,	15 "	" $\frac{1}{2}$ to 200 "	" "	5.25

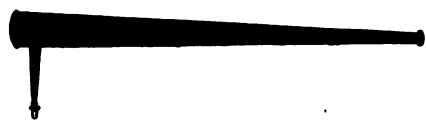
* 2284. Beakers, Griffin's, low, wide shape, with lip. Best Bohemian.

No.	000	00	0	1	2	3	4	5	6	7	8	9	10	11	12
Capacity,	$\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	5	8	12	20	25	40	55	70	80	120	150	200 oz.
Price,	\$.07	.09	.10	.12	.18	.25	.30	.40	.50	.60	.70	.80	.90	1.00	1.20

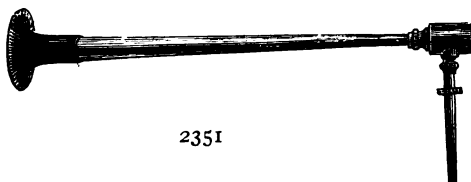
—* 3872. Beakers, Jena, Griffin's, low form, with lip. (See illustration 2276-2284.)

Approximate capacity,	50	100	150	250	400	600 cc.
Height-Diameter,	55-45	60-50	75-55	85-65	100-75	115-85 mm.
Price each,	\$.13	.14	.15	.18	.25	.30
Approximate capacity,	800	1000	1300	1500	2000	2500 cc.
Height-Diameter,	135-95	145-105	160-110	175-120	185-125	200-130 mm.
Price each,	\$.35	.40	.48	.55	.63	.70

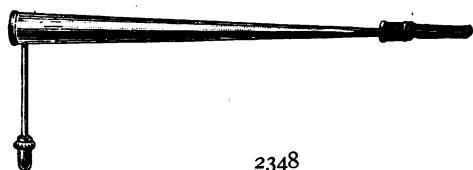
BLOW PIPES



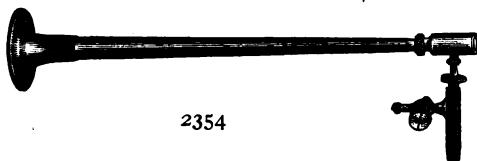
2347



2351



2348



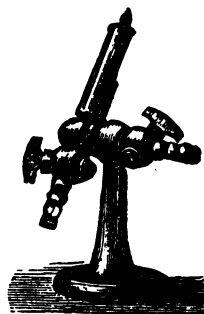
2354



2349

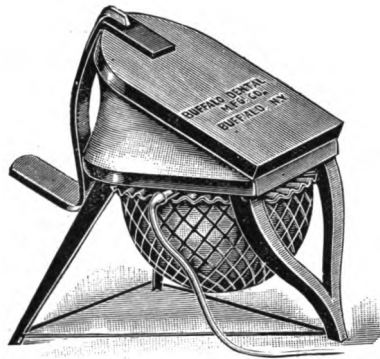


2350



2334

- | | | |
|---------|--|--------|
| * 2347. | Blow-pipe, Black's, japanned, with movable brass tip..... | \$.15 |
| * 2348. | Blow-pipe, Black's, brass, with tip that unscrews, and wooden mouth piece | .50 |
| * 2349. | Blow-pipe, brass, plain | |
| | 8 10 12 in. long. | |
| | \$.08 .10 .12 | |
| * 2350. | Blow-pipe, brass, with air-chamber, | |
| | 8 10 12 in. long. | |
| | \$.15 .20 .22 | |
| | Mouth-pieces for No. 2349 or No. 2350, 25c. extra. | |
| * 2351. | Blow-pipe, Plattner's, brass, best German make; soldered platinum plate, trumpet mouth-piece of vulcanite; can be taken apart in four pieces | 1.40 |
| ○ 2352. | Ditto, with movable platinum tip..... | 2.60 |
| ○ 2353. | Ditto, nickel-plated, with movable platinum tip..... | 2.60 |
| * 2354. | Blow-pipe, Plattner's, of brass, with gas supply tube, as used at Harvard University. Plain, \$2.00. With stop-cock, as illustrated | 2.50 |
| * 2334. | Blow-pipe, Bunsen's, for gas, with set of 3 nipples..... | 3.60 |
| | This is the best all round blast lamp for general laboratory work. | |

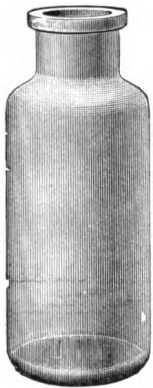


2309

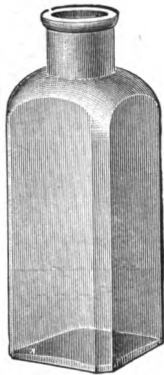
—* 2309. Bellows, Fletcher's, new pattern on iron legs.

No.	10, small	10 a, medium	10 b, large.
Diameter,	7¼	9	11 inches.
Price,	\$5.50	7.00	9.50

BOTTLES



2383



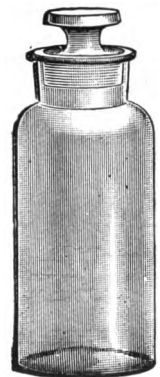
2383a



2385



2390



2396

* 2383. Bottles, Wide Mouth, Round. Flint glass, for corks.

	½	1	2	3	4	6	8	12	16	32 oz.
Dozen,	\$.22	.25	.30	.35	.40	.50	.60	.70	1.00	1.35

* 2383a. Square wide mouth bottles same prices as the round.

○ 2384. Bottles, Wide Mouth. Green glass, for corks.

	½	1	2 gal.
Dozen	\$1.80	3.00	8.00

* 2385. Bottles, Extra Wide Mouth. Flint glass, for corks.

	½	1	2	3	4	8 oz.
Dozen	\$.20	.30	.35	.40	.45	.75

* 2390. Bottles, Narrow Mouth, mushroom stoppered. (Tinctures.) Flint glass.

	1	2	4	6	8	16	32 oz.
Dozen	\$.90	1.10	1.20	1.40	1.60	1.85	2.25
	½	1	2	3 gal.			
Dozen	\$4.00	6.00	13.50	24.00			



2408

* 2396. Bottles, Wide Mouth, mushroom stoppered, (Salt Mouth). Flint glass.

	I	2	4	8	16	32 oz.	½	I	2 gal.
Dozen, \$	1.00	1.20	1.50	2.00	2.25	3.00	4.50	7.20	18.00

○* 2408. Bottles, Set of 40 E. & A. Reagent Bottles, with strong polished stopper, with projecting rim and square top, as per list below, consisting of five 8 oz. tinctures, twenty-eight 4¼ oz. tinctures, six 4 oz. saltmouths and one 1 oz. dropping bottle..... \$8.00

○ 2409. Same set, filled with c. p. reagents, sealed and packed in shipping order 18.00

8 oz. Bottles.

Acid Sulfuric (dil.) H_2SO_4
 Acid Hydrochloric HCl
 Acid Nitric HNO_3
 Ammonium Hydrate $(\text{NH}_4)\text{HO}$
 Blank, 1.

4 oz. Bottles.

Acid Sulfuric conc. H_2SO_4
 Ammonium Chloride $(\text{NH}_4)\text{Cl}$
 Ammonium Oxalate $(\text{NH}_4)_2\text{C}_2\text{O}_4$
 Ammonium Sulfocyanide $(\text{NH}_4)\text{CNS}$
 Ammonium Molybdate $(\text{NH}_4)_2\text{MoO}_4$
 Ammonium Carbonate $(\text{NH}_4)_2\text{CO}_3$
 Acid Acetic $(\text{HC}_2\text{H}_3\text{O}_2)$
 Alcohol $(\text{C}_2\text{H}_5)\text{OH}$
 Silver Nitrate AgNO_3 (amber)
 Barium Chloride BaCl_2
 Calcium Hydrate CaH_2O_2
 Cupric Sulfate CuSO_4
 Ferric Chloride Fe_2Cl_6
 Hydric Sulphide H_2S (amber)
 Ammonium Sulfide $(\text{N}_4\text{H}_2)\text{S}$ (amber)

Magnesium Sulfate MgSO_4
 Mercuric Chloride HgCl_2
 Mercurous Nitrate $\text{Hg}_2(\text{NO}_3)_2$
 Platinum Chloride PtCl_4 (1 oz. drop'g bot.)
 Lead Acetate $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2$
 Potassium Acid Chromate $\text{K}_2\text{Cr}_2\text{O}_7$
 Potassium Ferrocyanide $\text{K}_4\text{Fe}(\text{CN})_6$
 Potassium Iodide KI
 Sodium Carbonate Na_2CO_3
 Sodium Acetate $\text{NaC}_2\text{H}_3\text{O}_2$
 Sodium Phosphate Na_2HPO_4
 Uranium Acetate $(\text{UO})\text{C}_2\text{H}_3\text{O}_2$
 Ether $(\text{C}_2\text{H}_5)_2\text{O}$
 1 Blank

4 oz. Saltmouth Bottles.

4 oz. Sodium Carbonate Na_2CO_3
 5 oz. Borax
 4 oz. Ferrous Sulfate FeSO_4
 4 oz. Potassium Cyanide KCN
 3¾ oz. Ammon. Sod. Phosphate
 $\text{Na}(\text{NH}_4)\text{HPO}_4 + 4\text{H}_2\text{O}$
 Test Paper

BRUSHES



2496a



2494



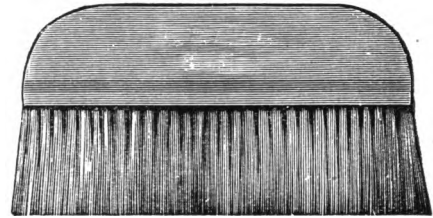
2493



2484



2495



2496b

2483. Brushes, for test tubes, on tinned iron wire.....Each, \$.05 Dozen, \$.25

* 2484. Brushes, for test tubes, on brass wire, stronger..Each .08 Dozen, .75

2488. Brushes, large, for cylinders and bottles; small sizes, with brass handle;
large sizes, with rattan handles. 10 12 15 20 in.
\$.10 .13 .16 .20 each.

○* 2493. Brushes, best camel's hair pencils.

Small	Medium	Large	Extra large, double quill.
\$.20	.25	.35	1.25 doz.

* 2494. Brushes, best camel's hair, for cleaning scale pans, flat.

$\frac{1}{2}$	1	$1\frac{1}{2}$	2 in. wide.
\$.15	.20	.25	.35 each

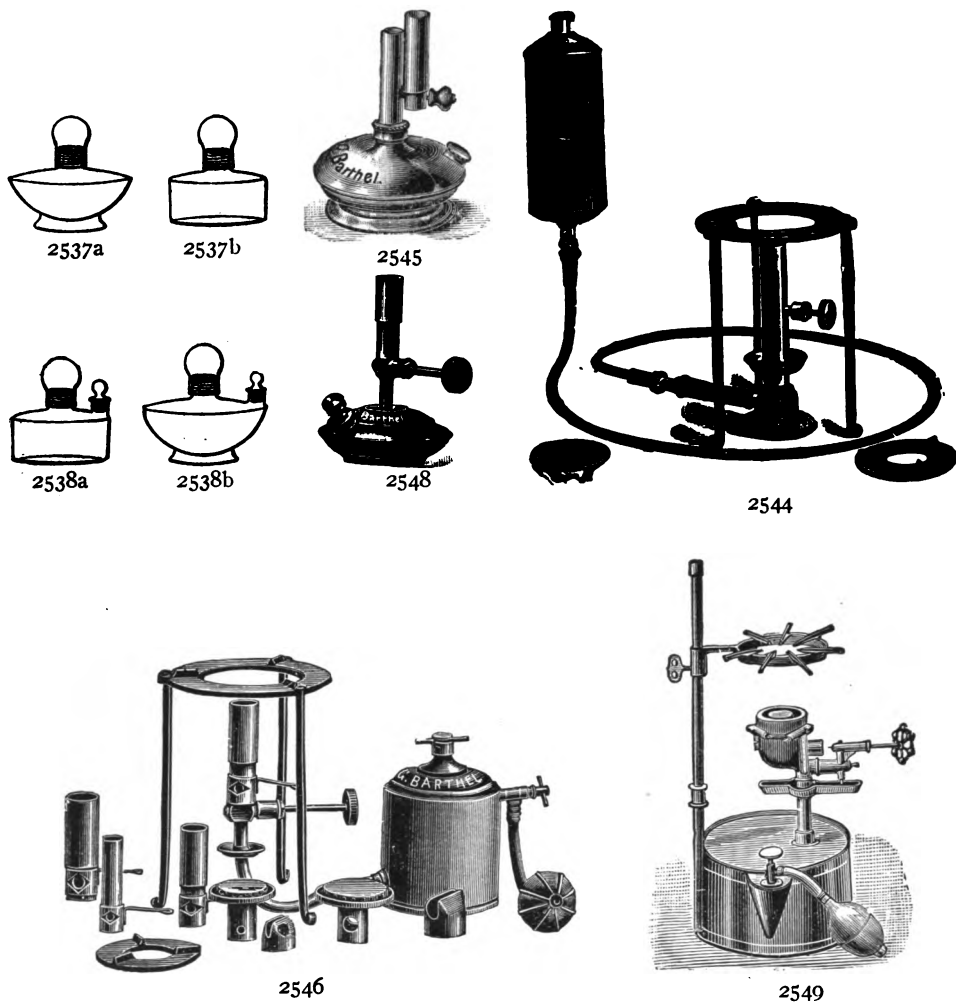
* 2495. Brushes, for assay buttons, genuine, Freiberg..... \$..50

* 2496a. Brushes, bristle for buck board cleaning, flat, tin bound, firmly set.

3	$3\frac{1}{2}$	4	5 in. wide.
\$0.75	.90	1.15	1.35

* 2496b. Brushes, bristle for buck board cleaning, width 8 inches, length
below binding $2\frac{1}{4}$ inches \$1.25

BURNERS



a. For Alcohol.

- * 2537. Burners, Alcohol lamp, glass, with ground cap, best German make, wick and wick holder included, shape a or b.

1	2	4	6	8 oz.
\$.30	.35	.40	.45	.50 each.

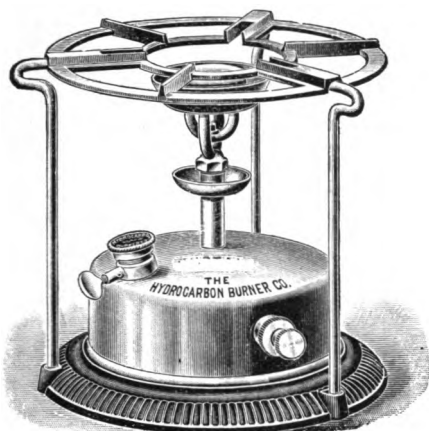
- * 2538. Ditto, with stopper, 10c. higher price.

- * 2544. Burners, Alcohol, Barthel's, requires no wick, very powerful, complete with 1½ meters flexible metallic tubing and reservoir of 1 litre capacity.

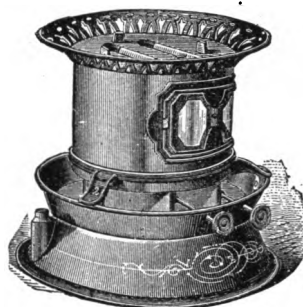
Small size	\$7.50
Large size	9.00
Tripod, extra .....	.50

The small size equals in power two, and the larger four, ordinary Bunsen burners.

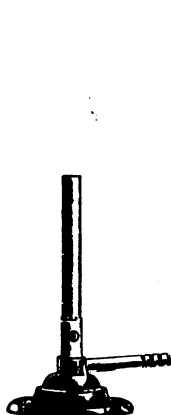
- * 2545. Burner, Alcohol, Barthel's plain form..... 4.50



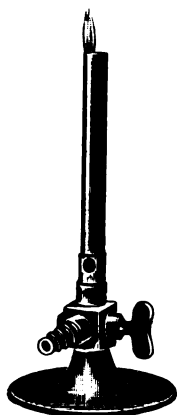
2553



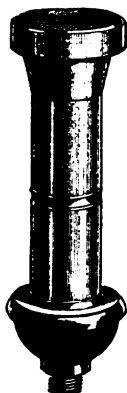
2554



2557



2569



2583



2592

b. For Gasolene.

- * 2546. Burner, Gasolene, Barthel's. The most perfect gasolene burner for laboratory use next to the blast lamp of same make, substantially constructed entirely of brass; perfectly safe, and cannot leak; gives a flame which can be readily adjusted from a very small one to a powerful blast of a maximum temperature of 2000° Celsius \$6.75
- Tripod, extra50
- To give a variety of flames in size and shape, we supply extra burners, for larger flame, \$1.00 each; for smaller flame, \$0.50 each. See cut.

Circular Burners, small, \$0.75; large, \$1.00 each. See cut.

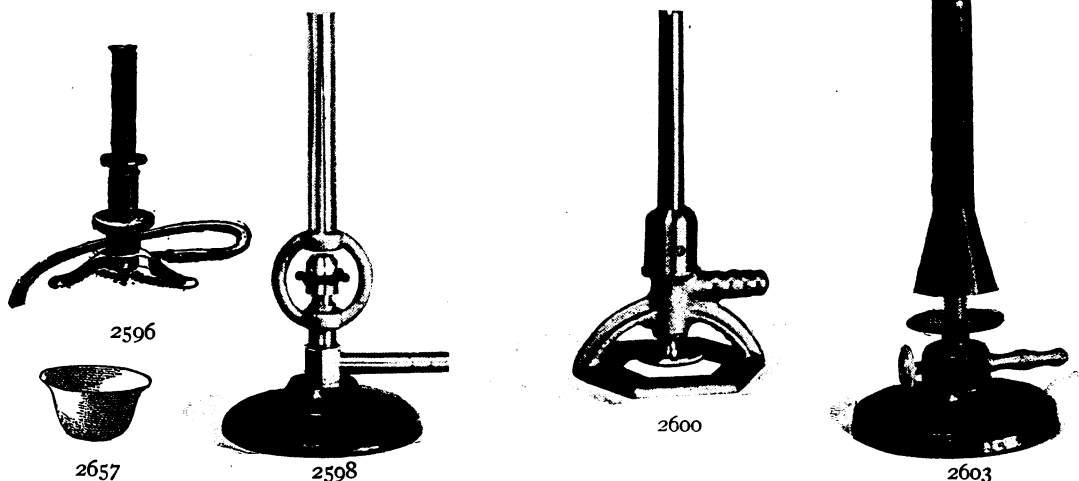
- * 2548. Burner, Gasolene, Barthel's, wickless, plain form 5.00
- * 2549. Burner, Gasolene, Dangler lamp 5.00

c. For Kerosene.

- * 2553. Burner, Khotal, blue flame wickless, 8¾ in. high, diam. at top 8¾ in., with support \$4.00
- Without support 3.60
- * 2554. Burners, Kerosene, so arranged that the kerosene is kept under water to prevent explosion. Diameter on top, 5 7½ 10½ in.
\$1.40 1.70 3.00

d. For Coal Gas.

- * 2557. **Burner, Bunsen's**, with air regulator, E. & A. make..... \$.35
 We claim that this burner, placed on the market by us some twenty-five years ago, is the best ever made, of the ordinary Bunsen type; the gas nipple is slot shaped, so that the opening can easily be made smaller or larger, as required. All parts are interchangeable, and we sell duplicates of any of them.
- * 2569. **Burner, Bunsen's**, with pilot flame and stop-cock..... 1.50
- * 2583. **Burners, Fletcher's Safety**, can be turned down to merest flicker without lighting back; gauze easily replaced.
- | | Small. | Medium. | Large. |
|----------------------------|-------------------|--------------------|--------------------|
| Diam. of gauze across top, | $\frac{7}{8}$ in. | $1\frac{1}{4}$ in. | $1\frac{1}{2}$ in. |
| Price, without base, | \$1.50 | 1.80 | 2.25 |
| Price, with base, | 2.15 | 2.60 | 3.10 |
- * 2592. **Burner, Chaddock's Improved Non-Corrodible Laboratory Burner.**
 This burner will be appreciated by every chemist who has used metal burners in hoods, as it is incorrodible, being made of porcelain and white fire-clay. It consists of three sections, serving for the various Laboratory requirements and is supplied with flame spreader, asbestos disc and asbestos rings. Small chimney is for platinum triangles..... 2.00



e. For Gasolene Gas and Natural Gas.

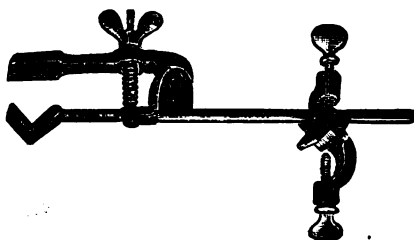
These burners are also admirably adapted for use with coal gas, as both air and gas supplies can be adjusted to the utmost nicety.

- * 2596. **Burner, Bunsen's**, adjustable, E. & A., base nickel-plated; the cheapest first-class burner on the market; especially recommended. \$.50
- * 2598. **Burner, Fletcher's**, improved by E. & A..... 1.00
- * 2600. **Burner, Tyrell's**, one of the very best made, either for coal gas or for gasolene gas 1.00
- * 2603. **Burner, Teclue**, large size. This is the most powerful single burner made and can be used instead of a blast lamp..... 2.00
2604. Ditto, small size 1.25
- Bucking Boards.** See Crushers, page 31.
- * 2657. **Capsules, Royal Meissen Porcelain**, No. 1, 1 inch deep, by 2 in. diameter20
 Ditto. No. 2, $\frac{7}{8}$ in. deep, by $1\frac{3}{4}$ in. diameter..... .15

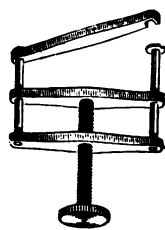
CLAMPS



2746



2761



2769



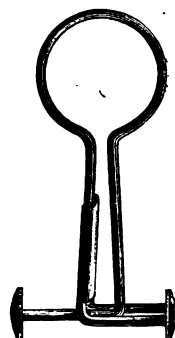
2750



2774



2768



2771

* 2746. Clamp, Chaddock's, of spring wire, nickel-plated.

No. 1 B, for Beakers, No. 0-No. 2.

No. 3 B, for Beakers No. 2-No. 4.

No. 3 D, for Dishes of diameter 3 in.-4 in.

No. 5 D, for Dishes of diameter 4 in.-6 in.

No. 7 D, for Dishes of diameter 6 in.-7 in.

No. 2 T, for Test Tubes and Necks of Flasks of diameter $\frac{1}{2}$ -1 $\frac{1}{2}$ in.

Any Size \$.25

* 2750. Clamp, for burettes, iron. Adjustable by checknut to any angle.
An excellent clamp for general use40

2751. Ditto, of brass65

* 2761. Clamp, Bunsen's, large, with fastener, for large tubes or condensers75

* 2768. Clamp, Pinch-cock, Hofmann's, of improved make, nickel-plated,
a screw compressor.

Small, opening, $\frac{1}{2}$ x $\frac{3}{4}$	Medium, $\frac{3}{4}$ x $\frac{7}{8}$	Large, 1 $\frac{1}{2}$ x2 $\frac{1}{4}$ in.
\$0.20	.25	.35

* 2769. Clamp, Pinch-cock, improved can be attached to tubing without disconnecting apparatus30

* 2771. Clamps, Pinch-cock, Mohr's, nickel plated.

	Small.	Medium.	Large.	Extra Large.	Dble. Extra Large.
Length,	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4 in.
Each,	\$0.10	.12	.15	.25	.50

* 2774. Clamps, Chaddock's Practical Pinch-cocks, one piece of brass spring wire, no solder. A new clamp for rubber-tubing that can be put on and off the tubing from the side. It allows the tubing to open fully and closes upon it with a lively spring. Nickel or enamel finish.

Small	Medium	Large	Extra Large
\$0.12	.15	.18	.25

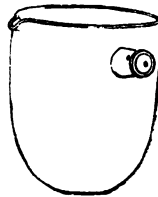
CASSEROLES



2686



2684



2687



2688

- * 2684. Casseroles, of best genuine Royal Berlin porcelain, with porcelain handles.

No.	1	2	3	3a	4	5	6	7
Diameter,	1	2½	5	7	12½	25	42	66 oz.
Price,	\$0.35	.40	.50	.70	.90	1.40	1.75	3.00

- * 2686. Casseroles, of Thuringia porcelain, with wooden handle and porcelain cover.

No.	1	2	3	4	5	6
Diameter,	4	8	12	16	24	32 oz.
Price,	\$0.50	.60	.70	.90	1.25	1.60

- * 2687. Casseroles, Royal Berlin, porcelain, deep form.

Depth,	1,050	1,900	3,230 cc.
Price,	6	7	8 in.
Wooden handles	\$2.00	2.50	3.25

- * 2688. Casseroles, Agate Ware.

Diameter,	16	24	32	64 oz.
Price,	4½	5	6	7 in.
	\$0.25	.30	.35	.45

2721. Chamois Skins, of best quality, \$0.25 to \$0.60 each.

2722. Charcoal, hardwood, for blowpiping, ¾ in.x1 in.x¼ in....Dozen, \$0.50

2839. Corks, best quality, XX, regular length.

No.	1	2	3	4	5	6	7	8	9	10
Diam. of small end,	¼	5-16	¾	7-16	½	9-16	⅝	21-32	11-16	¾ in.
Per gross,	\$0.20	.22	.24	.26	.32	.38	.50	.60	.72	.90
No.	11	12	13	14	15	16	17	18	19	20
Diam. of small end,	13-16	⅞	15-16	1	1-16	1⅞	13-16	1¼	15-16	1⅞ in.
Per gross,	\$1.00	1.10	1.20	1.35	1.50	1.85	2.00	2.20	2.40	2.60

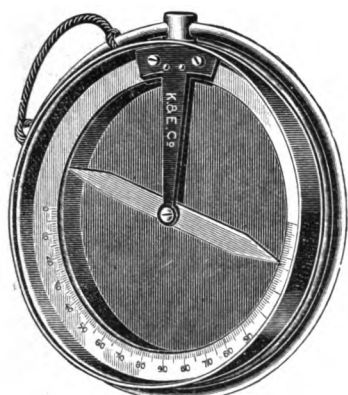
Extra long corks charged 20 per cent. higher than above.

2840. Corks, flat, for wide mouth bottles. XX quality.

Diam. of larger end,	1	1⅞	1¼	1⅜	1½	1⅝	1¾	1⅞	2	2⅞ in.
Per dozen,	\$0.10	.12	.15	.18	.20	.23	.25	.28	.30	.35
Per gross,	.80	1.00	1.40	1.60	1.85	2.10	2.50	3.00	3.50	4.00
Diam. of large end,	2¼	2½	2⅝	2¾	3	3½	4	4½	5	6 in.
Per dozen,	\$0.40	.55	.60	.75	1.00	1.20	1.50	2.25	2.75	5.00
Per gross,	4.50	6.00	7.00	8.00						

- * 2841. Cork Borers, of polished hard brass, best make. In sets:
(See illustration page 29.)

Nos.	1 to 3	1 to 6	1 to 8	1 to 12	1 to 15
	\$0.60	1.00	1.50	2.25	3.00



2813



2814

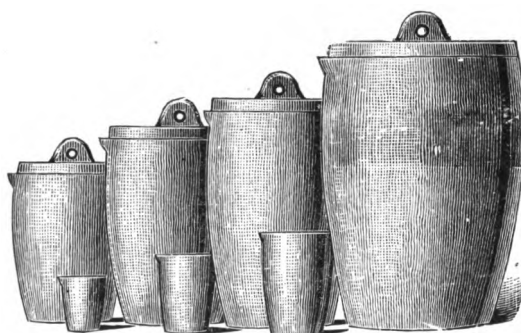


2841

○* 2813. Compass, Miners', or Dipping Needle, for tracing iron ore. \$12.00

○* 2814. Compasses, in metal case, with cover, best make, arranged for surveying, with folding sights, agate centre, stop to needle, etc.
 Watch pattern, $1\frac{3}{4}$ 2 $2\frac{3}{8}$ in. diameter.
 \$4.00 4.60 5.10

CRUCIBLES



2860

○* 2860. Crucibles, Plumbago, Dixon's make.

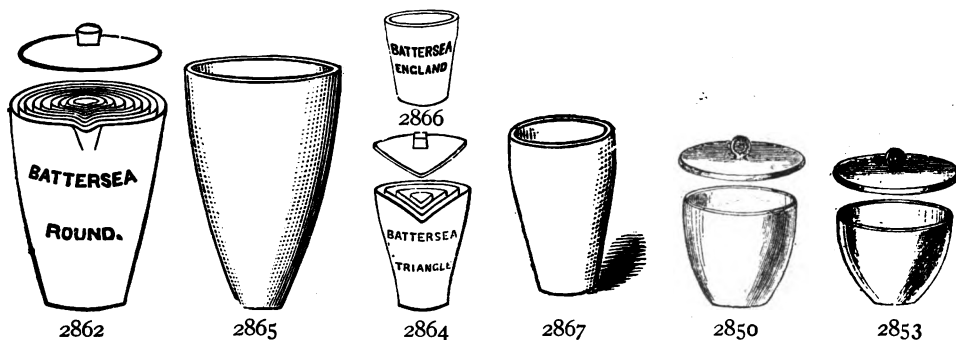
No.	0	00	000	0000	1	2	3
Height,	2	$2\frac{3}{8}$	$2\frac{1}{2}$	3	$3\frac{5}{8}$	$4\frac{1}{2}$	$5\frac{1}{4}$ in.
Price,	\$0.15	.15	.15	.15	.25	.30	.35 each.

○ 2861.	Covers,	.15	.15	.15	.15	.15	.15 each
	No.	4	5	6	7	8	9
	Height,	$5\frac{5}{8}$	6	$6\frac{1}{2}$	$6\frac{3}{4}$	$7\frac{1}{4}$	$7\frac{5}{8}$
	Price,	\$0.40	.45	.50	.55	.60	.65
							.70 each.

○ 2861. Covers, .15. .15 .20 .20 .20 .20 .20 each
 Prices for larger sizes up to 22 inches high quoted on application.
 Each number represents a capacity of about two pounds of metal.

CLAY CRUCIBLES

Battersea Crucibles are well known for their uniformity and superior quality, and power of resisting the greatest heat without danger of cracking from sudden change.



—* 2862. Crucibles, Battersea, fire-clay, round form. The best and most durable made. Dimensions are outside measurements.

No.	A	B	C	D	E	F	G	H	J
Height,	2 $\frac{5}{8}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	5 $\frac{5}{8}$	5 $\frac{7}{8}$	6 $\frac{5}{8}$ in.
Diameter,	1 $\frac{5}{8}$	1 $\frac{7}{8}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	2 $\frac{7}{8}$	3	3 $\frac{3}{8}$	3 $\frac{3}{4}$	4 $\frac{3}{8}$ in.
Price per doz.	\$0.30	.35	.40	.45	.70	.80	1.10	1.20	1.65
Covers, doz.	.30	.30	.30	.35	.45	.55	.70	.80	.85
No.	K	L	M	N	O	P	Q	R	
Height,	7 $\frac{1}{4}$	8	8 $\frac{1}{2}$	9 $\frac{3}{8}$	10	11	12	13 in.	
Diameter,	4 $\frac{3}{4}$	5 $\frac{1}{4}$	5 $\frac{3}{4}$	6 $\frac{1}{2}$	7	7 $\frac{3}{4}$	8 $\frac{3}{8}$	9 $\frac{3}{8}$ in.	
Price per doz.	\$1.75	3.00	3.50	4.90	7.25	8.00	9.15	12.00	
Covers,	1.10	1.20	1.35	1.60	1.90	2.10	2.25	2.70	

In Original casks at following prices:

A	B	C	D	E	F	G	H	J	
\$1.85	2.25	3.25	3.60	5.75	6.25	8.60	9.00	13.00	per hundred.
K	L	M	N	O	P	Q	R		
\$13.59	24.00	28.00	39.00	58.00	64.00	73.00	100.00		per hundred.

○* 2864. Crucibles, Battersea, fire-clay, triangular form.

No.	S	T	U	V
Height,	4 $\frac{1}{2}$	4	3 $\frac{1}{2}$	3 $\frac{1}{4}$ in.
Width,	4 $\frac{3}{8}$	3 $\frac{3}{4}$	3 $\frac{1}{4}$	2 $\frac{7}{8}$ in.
	\$8.75	6.50	4.75	3.60 per hundred.
Covers,	6.50	6.50	5.50	4.25 per hundred.

—* 2866. Crucibles, Colorado or lead assay, Battersea, fire-clay.

No.	AA	A	B
Height,	2 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{3}{8}$ inches.
Diameter,	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3 inches.
Capacity,	5	10	20 grammes.
Price per 100,	\$2.75	3.50	4.50

○* 2865. Crucibles, Denver, fire-clay, for open furnace.

No.	D	E	F	G	J	K	L
Height,	4	4 $\frac{1}{2}$	5	5 $\frac{5}{8}$	6 $\frac{5}{8}$	7 $\frac{1}{4}$	8 in.
Diameter,	2 $\frac{1}{2}$	3	3 $\frac{3}{8}$	3 $\frac{3}{8}$	4 $\frac{3}{8}$	4 $\frac{3}{8}$	5 $\frac{1}{4}$ in.
Price per 100,	\$3.50	5.50	6.00	8.00	12.00	13.50	24.00
Covers,	2.25	3.00	4.00	5.00	6.00	8.75	8.75

*○ 2867. Crucibles, lead assay, Denver, fire-clay. Same measurements as Battersea No. 2866.

	5	10	20	30 grammes.
Capacity,				
Price per 100,	\$2.50	3.00	4.00	6.00
Covers per 100,	2.25	2.25	3.50	4.00

* 2850. Crucibles, of genuine Royal Berlin porcelain, glazed throughout, with covers; the best made. High Form.

No.	000	00	0	I	2	3	4	5	000	00	0
Capacity,	8	12	17	26	50	80	145	265	5	10	15 cc.
Diameter,	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	1	1 $\frac{1}{8}$	1 $\frac{3}{8}$ in.
Each,	\$0.12	.15	.23	.25	.35	.45	.50	.60	.09	.12	.15

- * 2853. Crucibles, of Royal Meissen Porcelain, glazed throughout, with covers.

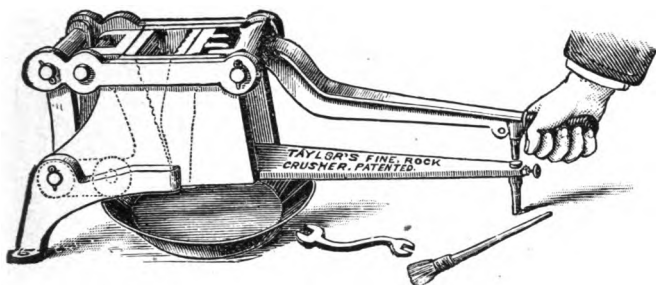
No.	1	2	3	4	5	6	7	8	9	10
Diameter,	80	70	65	55	45	40	35	30	23	17 mm.
Capacity,	6	4½	3½	2	1¼	1	½	¼	⅛	1-16 oz.
Each,	\$0.50	.40	.33	.25	.22	.20	.15	.14	.13	.12

Crucibles of platinum, see Platinum.

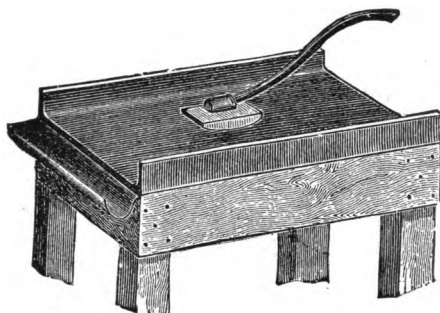
Crucibles of Fused Silica, and Fused Aluminum. Write for particulars.)

Crucible Tongs. See Tongs.

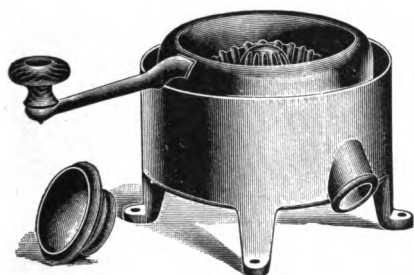
CRUSHERS



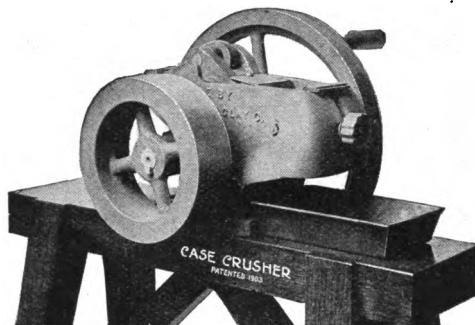
2896



2899



2898

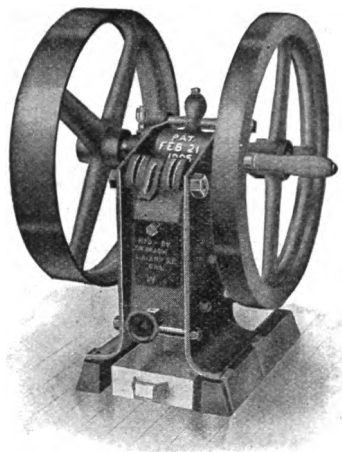


2897

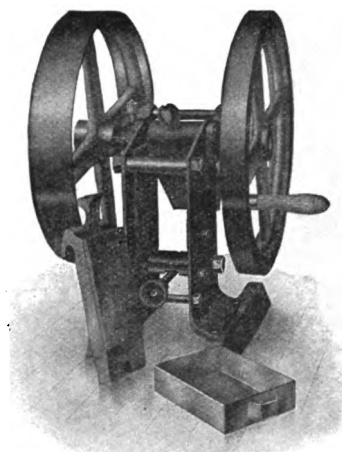
(See also Mills and Agate Mortar Grinder No. 4081.)

- * 2896. **Crusher, Hand, Taylor's**, very efficient and practical, easily adjusted to crush coarse or fine. Weight, 88 lbs. \$25.00
Set of extra jaws 1.50
- * 2897. **Crushes, Case's**. Capacity up to 100 lbs. per hour, depending upon the nature of the ore to be crushed. Can be quickly adjusted to crush from ¼ inch to 20 mesh or finer. Jaw opening, 2½ by 3 inches; weight, 135 lbs. Duplicate parts can be obtained.
For hand power only 37.00
With pulley for power 40.00
- * 2898. **Crusher and Pulverizer combined, Clarkson's, No. 1**. Does the work of a rock breaker and mortar, pulverizing faster than any hand machine ever invented and will pulverize almost anything from clay to cast iron. 25.00
Only one of the two handles is illustrated.
- * 2899. **Crusher, plate of chilled iron, high rim, with rubber set in wooden handle, for powdering ore.** Size, 18x24 24x36 in.
Complete \$9.00 15.00

CHIPMUNK CRUSHER



2899a

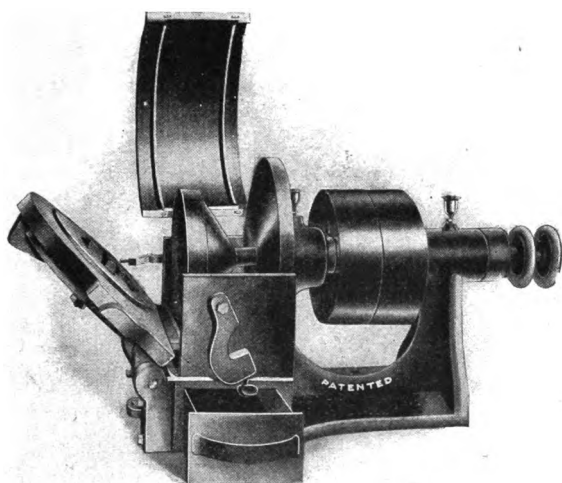


2899a

- 2899a. Crusher Chipmunk, Made With Steel Frames Malleable Iron Jaws and Fittings, Babbitted Bearings.

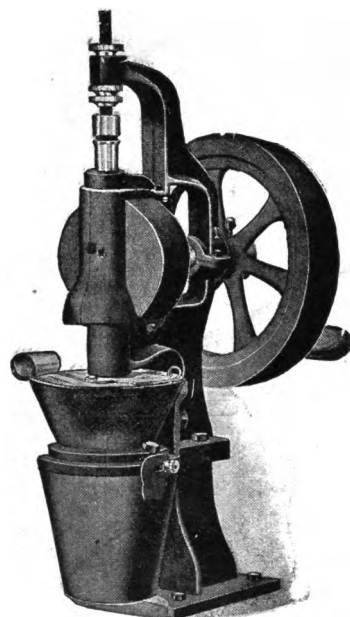
The vibratory jaw moves forward and downward and impels a discharge; twice the capacity of any other crushing device with jaws of same size. Readily adjusted for coarse or fine crushing. Easily cleaned. The most practical and rapid laboratory crusher on the market. Made in two sizes.

	Capacity Per hour.	Net Wt.	Shipping Wt.	Prices
○* 2899a. Small Size—Hand and Power	..300 lbs.	121 lbs.	151 lbs.	\$40.00
Power, with T and L Pulleys	.300 lbs.	145 lbs.	195 lbs.	45.00



2899b

Open for Cleaning.



2899c

○* 2899b. Disc Pulverizer \$85.00

Guaranteed to successfully reduce with one grinding any material formerly reduced on the bucking board.

Instantly adjusted from 20 to 200 mesh.

All interior parts enameled and readily exposed for cleaning.
Discs wear to place and are renewable.

Record—one lb., one minute, one grinding, 100 mesh.

Dia. of Pulleys	Face of Pulley	Net Wt.	Gross Wt
9 ins.	2½ ins.	235 lbs.	275 lbs.

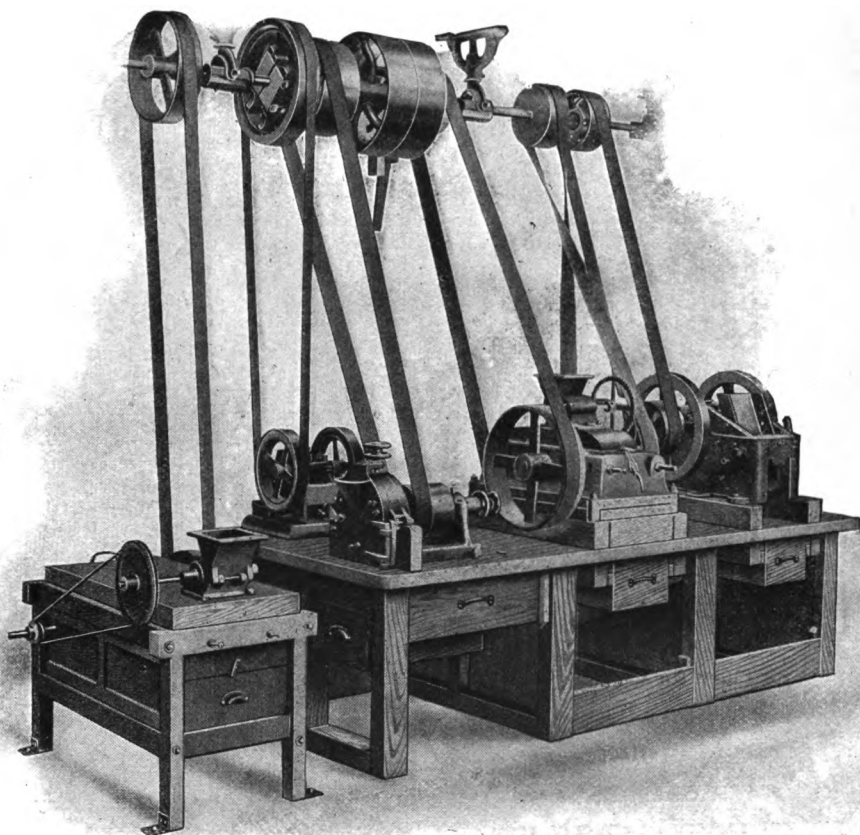
○* 2899c. Hand Sample Grinder. \$50.00

It will pulverize with one grinding an entire ore sample to any desired degree of fineness up to 200 mesh powder. Adjustment may be altered instantly.

Can be thoroughly and quickly cleaned after each sample.
Discs near to place and are renewable.
Ball bearing. Light running.

A 4-ounce sample reduced to 60 mesh in 2 minutes, 100 mesh in 3 minutes.

Net Wt.	Gross Wt.
125 lbs.	160 lbs.



2899d

○* 2899d. **The Most Complete Sample Crushing, Grinding and Screening Plant built.** It consists of:

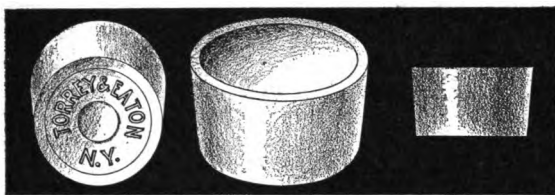
1-2x6 Laboratory Crusher	\$180.00
Weight 600 lbs. Output 250-600 lbs. per hour.	
1-1½x3 Laboratory Crusher.....	50.00
Weight 75 lbs. Output 75-150 lbs. per hour.	
1-8x5 Laboratory Roll	150.00
Weight 650 lbs. Capacity 100-1200 lbs. per hour.	
1 Sample Grinder	100.00
Weight 75 lbs. Capacity 80-200 lbs. per hour.	
1 Laboratory Screen	50.00
Screens from ¼ inch to 100 mesh. Capacity 100-1,800 lbs. per hour.	

This is a splendid complete set for an Assay Laboratory

Grinding Mills. (See page 68.)

CUPELS AND ACCESSORIES

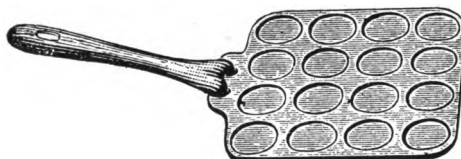
Messrs. Torrey & Eaton, the experienced and well-known assayers of the U. S. Assay Office in New York, manufacture for us cupels such as they use in their own work and which are of unequalled excellence. The bone ash used is of the best quality. The manner of mixing the material and the pressure used in moulding, are uniformly the same and have been determined upon after a great number of careful experiments. These features of the process of manufacture serve to make the absorption uniform. Each cupel has the inner edge rounded off, as small pieces of the sharp edge of the usual form are liable to chip off, and falling upon the bottom are removed with difficulty. Each cupel is carefully packed and sufficiently strong to stand considerable handling.



2901



2904-2905



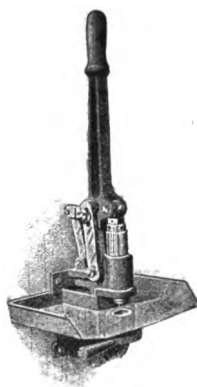
2909

- * 2901. Cupels, of best washed bone ash, Torrey & Eaton's superior make.
- | | | | | | | | | | |
|------------|--------|-------|-------|-------|-------|-------|-------|-------|--------------|
| Diameter, | 1 | 1 1/8 | 1 1/4 | 1 3/8 | 1 1/2 | 1 5/8 | 1 3/4 | 1 7/8 | 2 in. |
| Absorbing, | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 grammes |
| Price, | \$1.50 | 2.00 | 2.25 | 2.75 | 3.00 | 3.50 | 4.00 | 4.50 | 5.00 per 100 |
- 2902. Cupels, Hoskins' make, sold in 1/2 gross and 1 gross boxes only.
- | | | | |
|-----------|--------|-------|---------------------|
| Diameter, | 1 | 1 1/4 | 1 1/2 inch. |
| | \$2.25 | 2.25 | 3.00 per gross. |
| | 1.25 | 1.25 | 1.75 per 1/2 gross. |
- 2903-1. Cupels Morganite, cupellation loss less than with others.
- | | | | | | | | |
|----------------|--------|-------|-------|-------|-------|-------|--------------|
| Diameter, | 1 | 1 1/8 | 1 1/4 | 1 3/8 | 1 1/2 | 1 3/4 | 2 in. |
| Absorbing, | 7 1/2 | 10 | 15 | 20 | 30 | 50 | 100 grammes. |
| Price per 100, | \$2.00 | 2.50 | 3.30 | 4.50 | 6.50 | 8.50 | 20.00 |
- * 2904. Cupel Moulds, Steel, best shape.
- | | | | | | |
|-----------|--------|-------|-------|-------|-----------|
| Diameter, | 1 | 1 1/4 | 1 1/2 | 1 3/4 | 2 inches. |
| | \$1.75 | 2.00 | 2.25 | 2.50 | 2.75 |
- * 2905. Cupel Moulds, brass, finely finished, same shape as No. 2904.
- | | | | | | |
|--|--------|-------|-------|-------|-----------|
| | 1 | 1 1/4 | 1 1/2 | 1 3/4 | 2 inches. |
| | \$2.35 | 3.00 | 3.25 | 3.75 | 4.00 |
- * 2909. Cupel Trays, holding 16 cupels, with detachable handle, all iron.... \$1.25
 Cupel Trays of Fused Silica. (Write for particulars.)
 Cupel Tongs. See under Tongs.

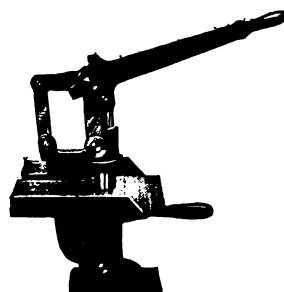
CUPEL MACHINES



2909a



2909c



2909b

AUTOMATIC CUPEL MACHINES.

600 Perfect Cupels per Hour.

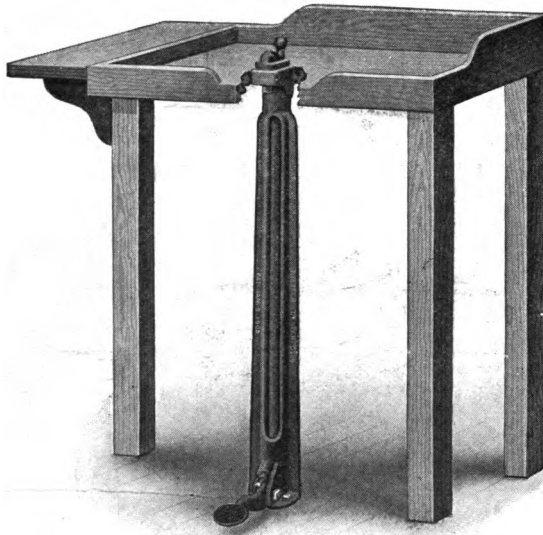
This machine consists of a hopper to hold the moistened bone ash, and a removable disc with a number of holes which are automatically filled and brought into position under the plunger. To operate, the bone ash is properly moistened and placed in the hopper, in which is a small wheel with a rubber rim, that keeps the material stirred up and fills the molds. Then raise the lever handle and grasping the handle on the lower disc, bring the filled mold beneath the plunger. The downward motion of the lever handle compresses the cupel, and by pulling the disc handle in a reverse direction to that formerly given it, the opening in the lower disc is brought beneath the cupel, and further pressure on the lever handle brings a new system of levers into action, expelling the cupel, which may be caught in the hand. An automatic attachment stops the discs at the proper points, and an adjusting device is arranged for giving different degrees of compression.

Cupels of various sizes and depth may be made by using interchangeable discs and dies, which are easily adjusted to the machine. Perfect edges and a homogeneous cupel are always obtained, and the special feature of this machine is the fact that but three separate movements are necessary to produce the cupel. This is a distinct advantage over other forms of cupel machines on the market, where from six to eight movements are required in making each cupel.

O* 2909a. Automatic Cupel Machines.

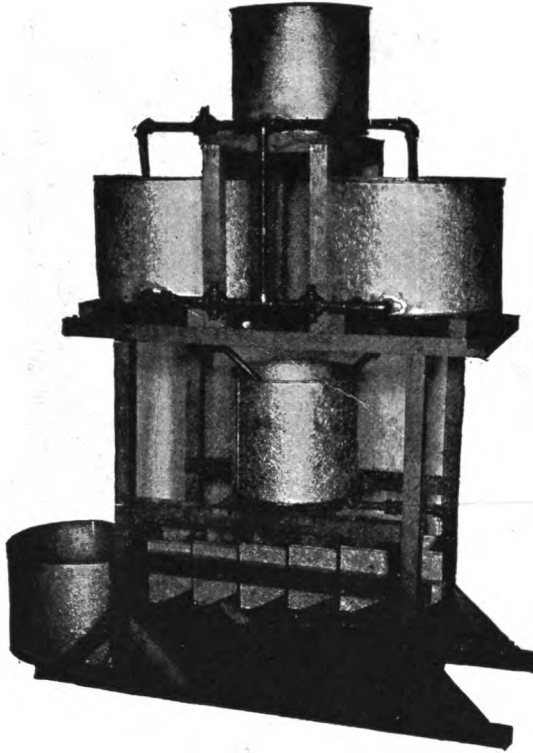
Dimensions:

	Greatest Width 17 inches		Greatest Length 26 inches		Greatest Height 17 inches.	
For making Cupels	1 in.	1¼ in.	1½ in.	1¾ in.	2 in.	All 5 sizes
Shipping Weight	130	130	130	130	130	190 lbs.
Price, complete	\$37.50	37.50	37.50	37.50	37.50	75.00
Price, extra Disc and						
Die for Cupels,	\$10.00	10.00	10.00	10.00	10.00	



2909d

- * **2909b. Table Cupel Machine** for hand feed with either $1\frac{1}{4}$, $1\frac{1}{2}$ or $1\frac{3}{4}$ in.
- | | |
|--|---------|
| mould and disc. (See illustration page 36.)..... | \$20.00 |
| All three sizes | 25.00 |
| Extra mould and disc, any one size | 3.50 |
- * **2909c. Wall Cupel Machine** for making $1\frac{1}{4}$, $1\frac{1}{2}$ and $1\frac{3}{4}$ in. Cupels 15.00
(See illustration page 36.)
- Separate machine needed for each size.
- * **2909d. Cupel Machine, Iler's Pedal.** Capacity of 500 cupels per hour. Table
is not included with the machine. The changing of the dies to
make any of the sizes below is extremely simple and takes
less than a minute; all dies of brass.
- | | |
|---|---------|
| Price of machine complete to make $1\frac{1}{4}$ and $1\frac{1}{2}$ in. Cupels | \$30.00 |
| Price of machine complete to make $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$ and 2 in. Cupels | 40.00 |



2909e

○* 2909e. Cyanide Plant 45.00

This small plant is designed for making a practical test of from 100 to 200 lbs. by the cyanide process. Its advantages consists of compactness, cheapness and durability. When knocked down for shipment all tanks nest one into the other. The zinc boxes are of improved form and arranged in units, it being possible to use any number from 1 to 6 when making a test. The solution from cyanide solution tank may be fed to either one or both and to either top or bottom of ore tanks. Price includes everything shown in illustration, besides filter bottoms for ore tanks.

Dimensions when set up:

Total height, 69 inches

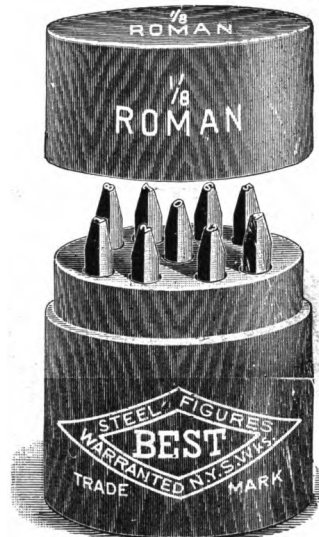
" width, 24 "

" length, 50 "

Weight, net, 118 lbs; packed for shipment, 150 lbs.



3200a



3200



2930



2932



2958

- * 2930. Desiccators, Scheibler's, superior make, with broad rims and well fitted covers.

Inside Diameter,	4	5	6	8	10 in.
Each,	\$.60	1.00	1.25	2.50	4.50

2931. Ditto, with porcelain plate, 1.35 1.85 2.50 4.50 7.00

- * 2932. Desiccators, Scheibler's, with glass stop-cock.

Inside Diameter,	4	6	10 in.
Each,	\$2.75	3.50	6.50

2933. Ditto, with porcelain plate, 3.50 4.75 9.00

- * 3200. Dies, Figures, steel, for marking bullion. Set of nine.

1-16	1/8	3-16	1/4	5-16	3/8	7-16	1/2 in.
\$.65	.65	.90	1.10	1.25	1.85	2.50	3.15 per set

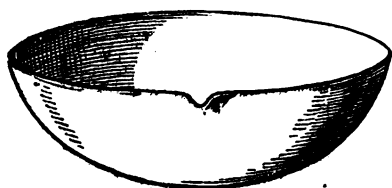
- * 3200a. Dies, Letters, of steel, for marking bullion. Full alphabet.

1-16	1/8	3-16	1/4	5-16	3/8	7-16	1/2 in.
\$2.00	2.00	2.65	3.25	3.75	5.25	7.50	10.00

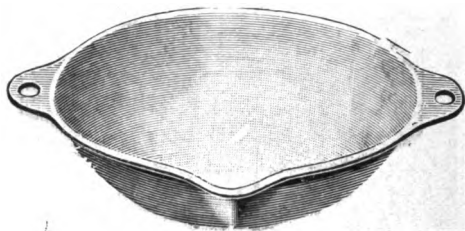
- * 2958. Dippers, of agate ware, with wood handle, for quicksilver.

Diameter,	4 1/4	5 1/4	6	6 3/4 in.
\$	.50	.55	.60	.75

DISHES



2963



2971



2964

- * 2963. Dishes, Evaporating, best genuine Royal Berlin Porcelain, Nos. 000 to 5 with round bottom, glazed inside and outside. Larger sizes with flat bottom, glazed inside and 1 inch from top outside. (Trade Mark, blue sceptre.) The best dish made.

No.	000	00	0	1	2	3	4	5	6	6a	7
Diameter,	2¼	2¾	3	3¼	3½	3¾	4¼	4¾	6	6¾	7 in.
	½	1½	2	3	4	6	8	10	14	18	24 oz.
Each . . \$	.12	.18	.20	.28	.32	.35	.45	.52	.70	.80	.85

No.	8	8a	9	10	11	12	13
Diameter,	8½	9	10½	12¼	14	16¼	18 in.
	43	48 oz.	½ gal.	7 pts.	1½	2	4 gal.
Each. . . \$	1.10	1.40	1.70	2.75	3.40	8.00	13.60

- * 2964. Dishes, Evaporating, best German porcelain, glazed inside, deep form, larger sizes with heavy ring.

No.	000	00	0	1	2	3	4	5	6	7	8
Diameter,	24	16	14	12	11	10	9	8	7	6½	6 in.
	6	3	2	1 gal.	3	2	1½	1 qt.	24	20	16 oz.
(\$12.00.net)		4.00	3.00	1.75	1.50	1.25	.85	.75	.65	.55	.45

No.	9	10	11	12	13	14	15
Diameter,	5½	5	4½	4	3½	3	2½ in.
	12	8	6	5	4	3	2 oz.
	.35	.30	.25	.20	.18	.15	.12

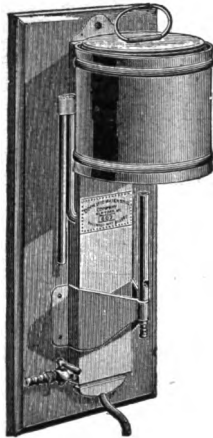
- * 2971. Dishes, Evaporating, iron, porcelain lined, so-called agate ware, shallow.

No.	1	2	3	4	5	6	7	8	9	10
Diameter,	5	8	9	12	16	18	20	22	24	26 in.
	⅛	¼	½	1	2	3	4	5	6	7 gal.
Each, . . . \$	1.00	1.25	1.60	2.25	3.25	4.50	6.00	10.00	12.75	14.00

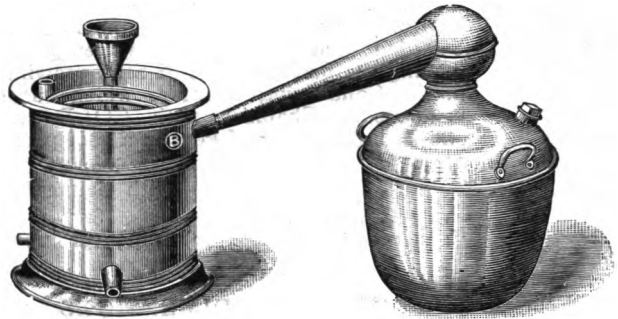
2972. Dishes, Evaporating, cast iron, deep shape; inside white enameled.

No.	8	7	6	5	4	3	2	1	0	00	000
Diameter,	5	6¾	7¾	8¾	9	10	11	12	14	15	20 in.
	16	20	24 oz.	qt.	3 pt.	½ gl.	3 qt.	1	2	3	8 gal.
\$	.55	.65	.75	.90	1.00	1.30	1.75	2.10	3.50	5.00	10.00

DISTILLING APPARATUS



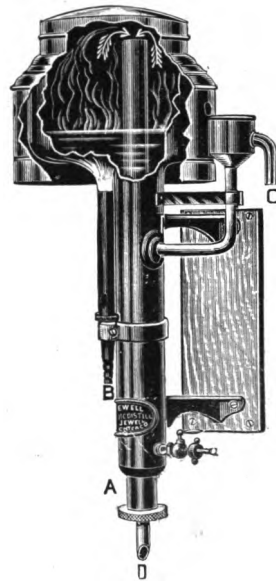
2980



2990



2990a



2983

- * 2980. Distilling Apparatus, "Domestic," for making distilled water operated by gas, copper, tin lined, top removable, perfectly automatic; size A produces $\frac{1}{2}$ gallon of distilled water an hour; burner consumes 6 feet of gas per hour.—Size A \$15.00
- 2981. Ditto, size B; produces one gallon distilled water an hour, burner consumes 14 feet of gas per hour 25.00
- * 2983. Distilling Apparatus, Jewell's, automatic, No. 4, nickel-plated copper capacity, $\frac{1}{2}$ gallon per hour 25.00
- * 2990. Distilling Apparatus, for water or spirits; copper retort, tin lined; zinc condenser with block tin worm

$\frac{1}{2}$	1	2	3	5 gallons
\$8.00	10.00	12.50	15.50	21.00

Write for special sheet of large size distilling apparatus.

- * 2990a. **Distilling Apparatus, Household Form**, made of heavy copper, heavily coated inside with pure block tin. The outside surfaces are nickel plated and buffed to a high finish.

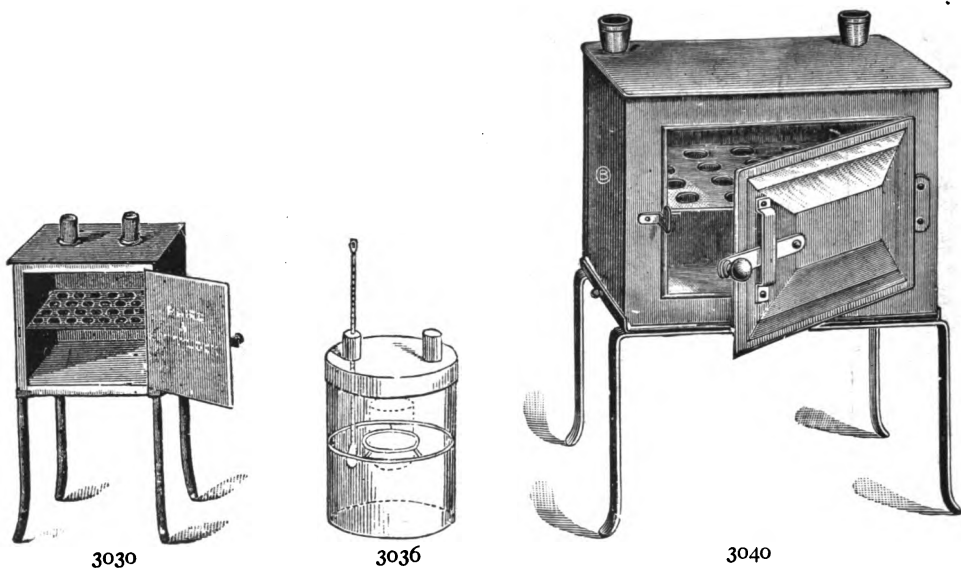
Operation—Place on range (or any heat will do). The bottom part (or Boiling Chamber) should be half full of water. Top part (or Condensing Chamber) full. When two quarts of Distilled Water are obtained, replenish Boiling Chamber by turning the faucet at side of Still, drawing off some of the water in the Condensing Chamber which has become hot. Now fill Condensing Chamber with COLD water. Distilled Water should be bottled and kept in a cool place.

Model	No. 2	No. 4	No. 12 (Automatic)
		(with Gauges)	(with Gauges)
Price	\$13	\$15	\$17
Capacities	2 qts (pr hr)	2 qts (pr hr)	3 qts to 1 gal (pr hr)

DIMENSIONS

Dia. at Base . . .	10½ in.	10½ in.	14 in.
Height	15 in.	15 in.	18 in.
Weight	5 lbs.	5½ lbs.	11 lbs.
Shipping-Weight	13 lbs.	13½ lbs.	21 lbs.

DRYING OVENS



- * 3030. **Drying Oven, single wall**, heavy polished copper, two openings on top, perforated shelf and extra sheet iron bottom. Mounted on four detachable iron legs.
- | | | | |
|-------|--------|------|-----------|
| Size, | 6x8 | 8x10 | 10x12 in. |
| | \$5.00 | 7.00 | 9.00 |
- * 3036. **Drying Oven, single wall, Rammelsberg's**, of heavy copper, 7 inches high by 6 inches diameter \$3.50
- * 3040. **Drying Ovens, double walls**, polished heavy copper, two openings on top, perforated shelf, mounted on four detachable iron legs and extra sheet iron bottom.
- | | | | |
|-------|--------|------|-----------|
| Size, | 6x8 | 8x10 | 10x12 in. |
| | \$7.50 | 9.00 | 12.50 |
- If fitted with Kekule's water regulator, extra charge \$1.00

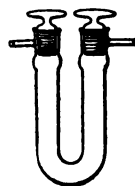
DRYING TUBES



3058



3061



3063

- * 3058. Drying Tubes, calcium chloride, with one bulb.
- | | | | | | | |
|---------|--------|-----|-----|-----|-----|--------|
| Length, | 3 | 4 | 5 | 6 | 8 | 10 in. |
| | \$.08 | .08 | .09 | .10 | .12 | .18 |
- Measured from behind the bulb.
- * 3061. Drying Tubes, U shape. Prices are for tubes of medium diameters.
- | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|--------|
| | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 in. |
| \$ | .12 | .14 | .16 | .18 | .20 | .25 | .35 | .45 |
- * 3063. Drying Tubes, U shape with side tubes and perforated glass stoppers
- | | | | |
|----|------|------|-------|
| | 4 | 5 | 6 in. |
| \$ | 1.00 | 1.15 | 1.25 |

FILTER PAPER



3210

Eimer & Amend Filter Paper

3208. Filter Paper, E. & A., White, in sheets 20x20 in. Per quire, \$.30
" ream, 4.80
3209. Filter Paper, E. & A., Grey, in sheets 20x20 in. Per quire, .25
" ream, 4.00
- * 3210. Filter Paper, E. & A., White, circular, put up in packages of 100 sheets. A very good paper for ordinary work.
- | | | | | | | |
|--------------------|-----|-----|-----|-----|-----|--------|
| Diameter, | 7 | 9 | 10 | 13 | 15 | 19 cm. |
| " | 3 | 3½ | 4 | 5 | 6 | 7½ in. |
| Per 100 sheets, \$ | .08 | .10 | .13 | .18 | .22 | .25 |
- | | | | | | |
|--------------------|-----|-----|-----|-----|--------|
| Diameter, | 25 | 33 | 40 | 45 | 50 cm. |
| " | 10 | 13 | 16 | 18 | 20 in. |
| Per 100 sheets, \$ | .35 | .56 | .72 | .96 | 1.10 |
3211. Filter Paper, E. & A., Grey, circular, put up in packages of 100 sheets.
- | | | | | | | | |
|--------------------|-----|-----|-----|-----|-----|-----|--------|
| Diameter, | 6 | 7½ | 10 | 13 | 16 | 18 | 20 in. |
| Per 100 sheets, \$ | .20 | .24 | .30 | .50 | .66 | .80 | .95 |



3212-30

Schleicher & Schuell's Filter Papers

- 3212. Filter Paper, C. S. & S. No. 595**, a good light paper, free from chlorine, made of best material

In sheets 19x21 in. **Per ream, 10.00**

Circular, put up in packages of 100 sheets.

Diameter,	5½	7	9	11	12½	15 cm.
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Per 100 sheets, \$.12	.15	.20	.23	.25	.30
-------------------------	-----	-----	-----	-----	-----	-----

Diameter,	18½	24	27	32	38½ cm.
-----------	-----	----	----	----	---------

Per 100 sheets, .. \$.40	.60	.80	1.00	1.25
-----------------------	-----	-----	-----	------	------

- 3213. Filter Paper, C. S. & S. No. 597**, a heavier paper than No. 595, filters very quickly. Standard quality for analytical purposes.

In sheets 23x23 in. **Per ream, \$18.00**

Circular, put up in packages of 100 sheets.

Diameter,	5½	7	9	11	12½	15 cm.
-----------	----	---	---	----	-----	--------

Per 100 sheets, \$.15	.20	.25	.30	.35	.40
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Diameter,	18½	24	27	32	38½ cm.
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Per 100 sheets, \$.55	.75	.90	1.15	1.50
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- 3214. Filter Paper, C. S. & S. No. 604 (Soft)**, similar to No. 597, but filters more rapidly. In sheets 23x23 in. **Per ream, 18.00**
- Circular, put up in packages of 100 sheets, price same as No. 597.

Filter Paper, C. S. & S. No. 589 and 590 filters, washed with hydrochloric and hydrofluoric acids, for quantitative analytical work. The best on the market. After incineration the residues of these filters weigh as follows:

Diameter,	5½	7	9	11	12½	15 cm.
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No. 589,	0,00004	0,00007	0,00011	0,00017	0,00021	0,00025
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No. 590,	0,00002	0,00003	0,00005	0,00007	0,00009	0,00013
----------	---------	---------	---------	---------	---------	---------

The weight of ashes of the smaller filters is so insignificant that it need not be considered; an advantage, where exact and rapid work is required.

- 3218. Filter Paper, No. 589, White Ribbon brand.** This brand, on account of its filtering speed and capacity for retaining precipitates, is best adapted for most purposes, and is always given when No. 589 is ordered, without further specifications.

3219. **Filter Paper, No. 589, Black Ribbon brand.** This brand being soft and of a very loose composition filters very quickly. Specially adapted for use in iron laboratories.

3220. **Filter Paper, No. 589, Blue Ribbon brand.** This brand is of close, firm texture. Suitable for use with a filter pump and retains the finest precipitates of opaqueness.

Prices for 589, black, white and blue ribbon brands. Put up in packages of 100 sheets.

Diameter,	5½	7	9	11	12½	15 cm.
Per 100 sheets, \$	.60	.70	.90	1.10	1.35	1.60

Munktell's Swedish Filter Paper



3231-34

— 3231. **Filter Paper, Swedish, No. 00, washed with Hydrofluoric and Hydrochloric Acid.** Circular, 100 filters in a package, 5 packages in a box.

Diameter,	5½	7	9	11	12½	15 cm.
Per 100 Filters, \$	.50	.55	.80	1.00	1.10	1.25

— 3232. **Filter Paper, Swedish, No. 0, washed with Hydrochloric Acid.** In square sheets, 48x48 cm.; per quire..... 2.50
Circular filters, 100 filters in a package, 5 packages in a box.

Diameter,	5½	7	9	11	12½	15	18½ cm.
Per 100 Filters, \$	.20	.27	.42	.55	.63	.85	1.25

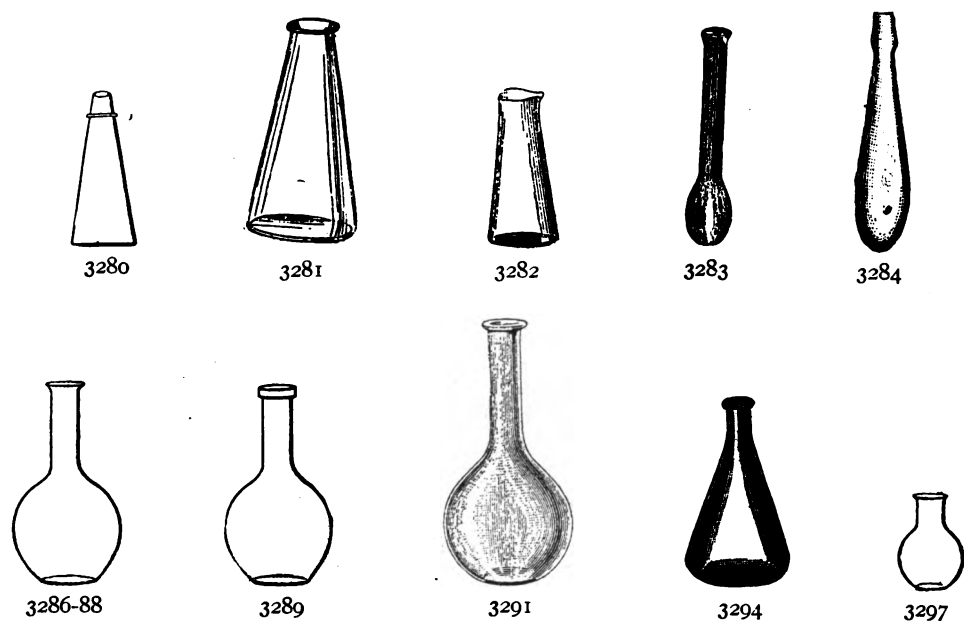
— 3233. **Filter Paper, Swedish, No. 1F, less ash than any other unwashed paper.** In square sheets, 48x48 cm., per ream, \$20.00, per quire \$1.20
Circular filters, 100 filters in a package, 5 packages in a box

Diameter,	5½	7	9	11	12½	15	18½ cm.
Per 100	\$.11	.16	.25	.30	.40	.50	.75

— 3234. **Filter Paper, Swedish, No. 2, of medium thickness, more rapid in filtration than No. 1F.** In square sheets, 48x48 cm., per ream, \$17.00; per quire, 1.00
Circular filters, 100 filters in a package, 5 packages in a box.

Diameter,	5½	7	9	11	12½	15	18½ cm.
Per 100	\$.10	.13	.20	.26	.31	.40	.53

FLASKS



Our flasks of Bohemian glass are from the famous factory of Josef Kavalier, Sazava, for whom we are United States Agents.

* 3280. Flasks, Assay or parting, conical, with ring, Bohemian glass.

Capacity,	2	4	8 oz.
Each,	\$.15	.20	.25

* 3281. Flasks, Assay, conical, without ring, Bohemian glass.

Capacity,	2	4	8	16 oz.
Each	\$.15	.20	.25	.30

* 3282. Flasks, Conical, with lip, Bohemian glass, so-called beaker flasks.

Capacity,	2	4	8	16	32 oz.
Each	\$.15	.20	.25	.30	.45

* 3283. Flasks, Assay, pear-shaped with long neck, Bohemian glass.

Capacity	2	4	8 oz.
Each	\$.12	.15	.25

* 3284. Flasks, Assay, pear-shaped, Bohemian glass. Capacity, 4 8 oz.

Each \$.20 .25

* 3286. Flasks, Flat Bottom, vial mouth, Bohemian, Josef Kavalier's make.

	1/2	1	2	4	6	8	12	16	24	32	48 oz.
Each	\$.08	.09	.10	.13	.16	.18	.22	.25	.30	.35	.45
	1/2	3/4	1		1 1/2	2		3			5 gal.
Each	\$.50	.60	.85		1.00	1.50		2.00			3.50

—* 3286-1. Jena Flasks, flat bottom; size, 50 cc. to 3000 cc. capacity have vial mouths, larger flasks have ring necks.

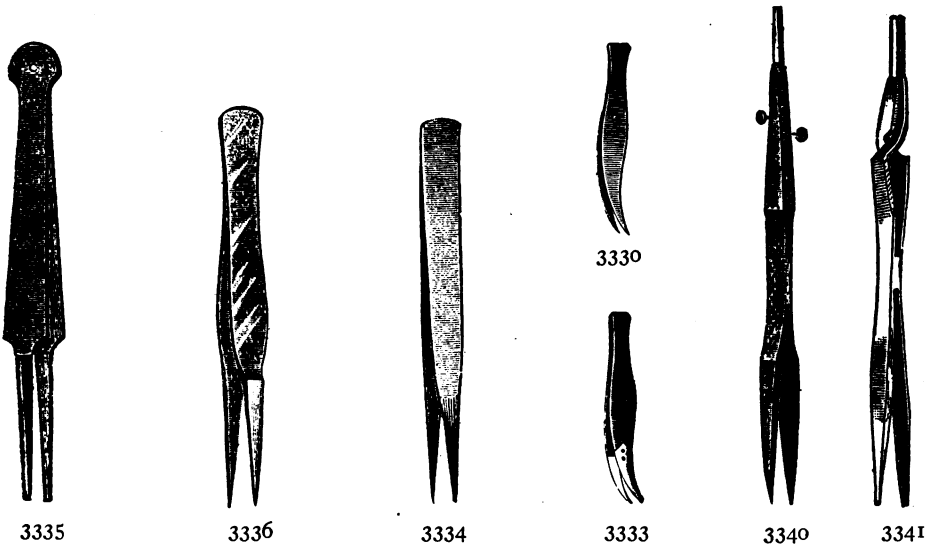
Approximate capacity,	50	100	150	200	300	400	500	700 cc.	
Price each,	\$.11	.12	.14	.16	.20	.24	.28	.33	
Approximate capacity,	1	1½	2	3	5	6	8	10	15 Litres.
Price each,	\$0.40	.45	.53	.70	1.00	1.40	1.80	2.40	3.20

3288. Flasks, Flat Bottom, vial mouth.. Best German make.

Capacity,	½	1	2	3	4	6	8 oz.
Each	\$.06	.07	.08	.09	.10	.12	.14
Capacity,	12	16	24	32	48	64 oz.	1 gal.
Each	\$.16	.20	.25	.30	.40	.50	.80

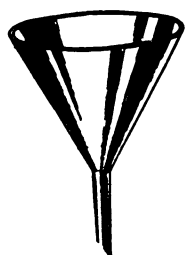
- * 3289. Flasks, Flat Bottom, with heavy ring-neck. Best German make. These are the best ring-neck flasks made, the inside edge of ring being ground off, which prevents cutting of rubber-stoppers and corks.
Capacity, $\frac{1}{2}$ 1 2 4 6 8 12 16 24 32 48 oz.
Each . . . \$.06 .07 .08 .10 .12 .14 .16 .20 .25 .30 .40
Capacity, $\frac{1}{2}$ 1 gal.
Each \$.50 .80
- * 3291. Flasks, Round Bottom, vial mouth, Bohemian, Josef Kavalier's make.
Capacity, 1 2 4 8 16 24 32 oz. $\frac{1}{2}$ 1 2 3 gal.
Each . . \$.09 .10 .14 .20 .25 .30 .35 .50 .85 1.50 2.00
- * 3294. Flasks, Erlenmeyer's, Bohemian, Josef Kavalier's make.
Capacity, 1 2 4 6 8 12 16 24 32 oz. $\frac{1}{2}$ 1 gal.
Each . . \$.10 .11 .14 .18 .20 .25 .28 .30 .40 .50 .85
- * 3297. Flasks, Flat Bottom, short wide necks (extraction flasks), German.
Capacity, 1 2 4 6 8 oz.
Each, .10 .12 .15 .20 .25

FORCEPS

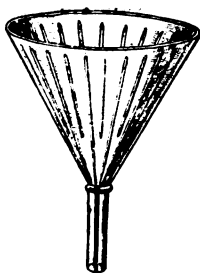


- * 3330. Forceps, brass, ends bent, very fine finish \$.20
- * 3333. Forceps, brass, ends bent with ivory tips70
- * 3334. Forceps, steel, fine points20
- * 3335. Forceps, steel, (tweezers), 4 4 $\frac{1}{2}$ 5 6 in.
\$.08 .09 .10 .18
- * 3336. Forceps, steel, extra stout, 4 $\frac{1}{4}$ inches, \$.20; nickel-plated25
3337. Forceps, steel, for buttons, Swansea-style75
3338. Forceps, steel, nickel-plated, Plattner's, for buttons70
Ditto, solid nickel 1.20
- * 3340. Forceps, steel, nickel-plated, 5 $\frac{1}{2}$ inches long, forceps both ends, one end with heavy platinum tips, Plattner's form 3-75
- * 3341. Ditto, French form 3-75

FUNNELS



3345



3350



3375



3347



3370



3374a



3374b



3376



3369

- * 3345. Funnels, Glass, angle of 60°; stem ground to a point, German make.

Diameter,	1	1½	2	2½	3	3½	4 in.	
Each	\$.07	.08	.09	.10	.12	.14	.16	
Diameter,	4½	5	6	7	8	9	10	12 in.
Each	\$.18	.20	.25	.35	.50	.55	.90	1.35

- * 3347. Funnels, Glass, Bunsen's, angle exactly 60°, ground rim, thin stem about 4 inches long, ground to a point.

Diameter,	1	1½	2	2½	3	3½	4	4½	5	6 in.
Each	\$.08	.09	.10	.12	.14	.16	.20	.25	.30	.35

3348. Funnels, Glass, Bunsen's, with extra long stems, about 6 in. long.

Diameter,	2	2½	3	3½	4 in.
Each	\$.15	.18	.20	.25	.30

Bunsen Funnels, special selection, are charged at 25 per cent. higher prices than the regular.

3349. Funnels, Glass, Bohemian, angle of 60°, ground rim; stem ground to a point.

Diameter,	1¼	1¾	2¼	2¾	3¼	3¾	4¼	4¾	5¼	6	7	8 in.
Each	\$.10	.12	.15	.18	.20	.23	.25	.30	.40	.45	.60	.80

- * 3350. Funnels, Glass, ribbed, for quick filtering.

Diameter,	3½	4¼	5	6	7¼	8½	10½ in.
Each	\$.10	.12	.15	.20	.25	.40	.70

3360. Funnels, Agate Ware.

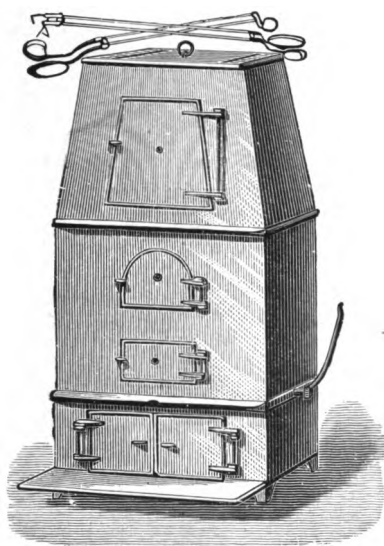
½ pint.	Pint.	Quart.	½ gal.	1 gal.
\$.35	.40	.45	.60	.75

- * 3369. Funnels, Separatory, globe shape, stoppered, long stem.

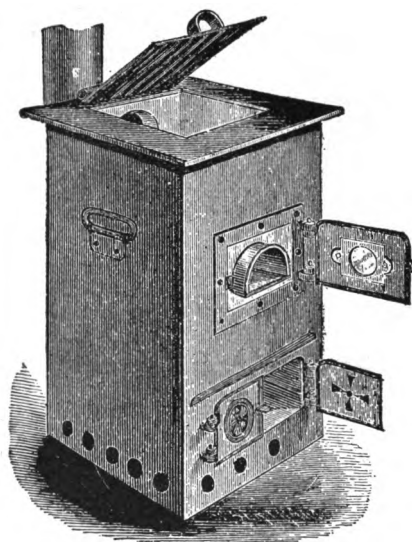
Capacity,	1	2	4	6	8	16	32 oz.
Each	\$.90	1.00	1.20	1.35	1.50	1.80	2.50

- * 3370. **Funnels, Separatory**, globe shape, stoppered, short stem, heavy glass.
 Capacity 8 16 32 oz. $\frac{1}{2}$ 1 gal.
 Each\$1.50 1.80 2.50 3.00 4.00
- ** 3374. **Funnel, Separatory**, cylindrical, open top, style a or b.
 Capacity, 1 2 4 8 oz.
 Each\$.90 1.00 1.20 1.40
- ** 3375. **Funnels, Separatory**, cylindrical, stoppered, smaller sizes to 8 oz. inclusive, with long stems, larger sizes with short stems.
 Capacity, 2 4 8 10 20 30 40 oz.
 Each . . . \$1.15 1.35 1.70 1.85 2.00 2.40 2.75
- * 3376. **Funnels, Separatory, Squibb's**, pear shaped.
 Capacity, 4 8 16 oz.
 Each\$1.25 2.00 2.50

FURNACES FOR COAL AND COKE



3392

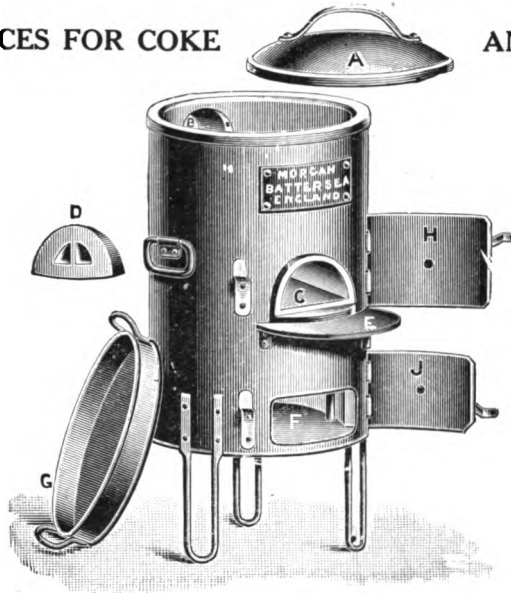


3395

- * 3392. **Furnace, Assay, Judson's Sectional No. 1**, Bottom section cast iron; middle and top sections steel, revolving grate, with set of concentric rings for the top, to use with sand baths.
 Height. Width. Depth. Size of muffle.
 36 18 13 inches, 12x6x4 in. 40.00
- 3393. **Furnace, Assay, Judson's. Sectional No. 2**, Same as No. 1, but without concentric rings, muffle door double.
 Height. Width. Depth. Size of muffle.
 42 22 16 inches, 15x9x16 in. 50.00
3394. **Furnace, Assay, E. & A., combined Muffle and Crucible**; heavy cast iron frame, lined with regular fire-bricks, which can be obtained wherever a furnace is used.
 For J muffle, 4x6x12 in., opening on top for crucible, 10x10 in. 30.00
 " L " 6x9x15 in., " " " " " 14x14 in. 50.00
- * 3395. **Furnace, Assay, Brown's**, of heavy sheet iron, with fire-brick lining; can be used for both muffles and crucibles; takes muffle 12x6x4 in. Price, including one muffle 20.00

FURNACES FOR COKE

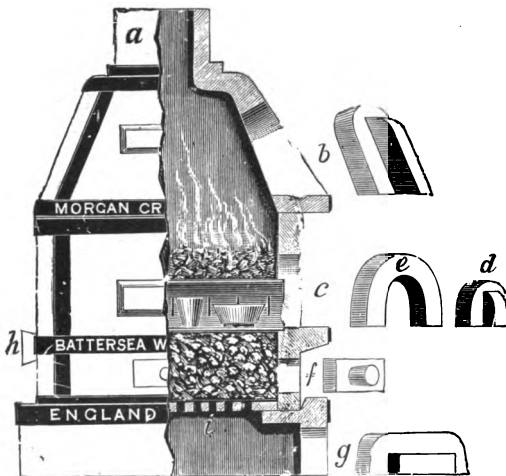
AND COAL



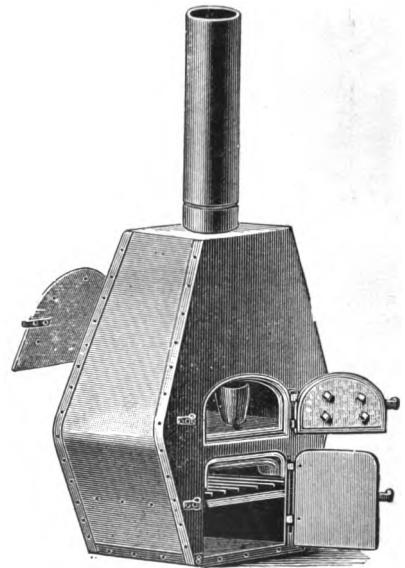
3395a

- * 3395a. Furnace, New Battersea. Small Prospector's, for assaying and melting, round iron, fire-clay lined, with sandbath and cover. Height, 26 in., diam., 10 $\frac{3}{8}$ inches

20.00



3390



3390a

- * 3390. Furnace, Assay, Battersea, of clay, iron bound. Strongest and best iron bound clay furnace ever made. Hundreds of them are in use throughout the country, and are giving perfect satisfaction.

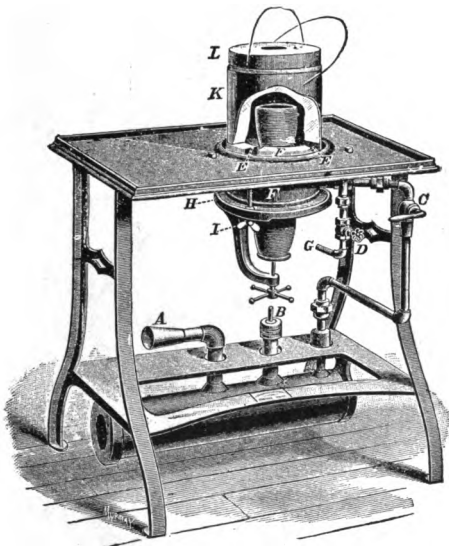
No.	Height.	Diameter.	Size Muffle.
A,	23 $\frac{1}{2}$ in.	12 $\frac{1}{2}$ in.	7x4 $\frac{3}{4}$ x3 in.....
D,	28 $\frac{1}{4}$ in.	15 $\frac{1}{2}$ in.	10x6 x4 in.....
E,	29 $\frac{1}{2}$ in.	16 $\frac{1}{2}$ in.	12x6 x4 in.....

Price.
\$17.00
26.00
29.00

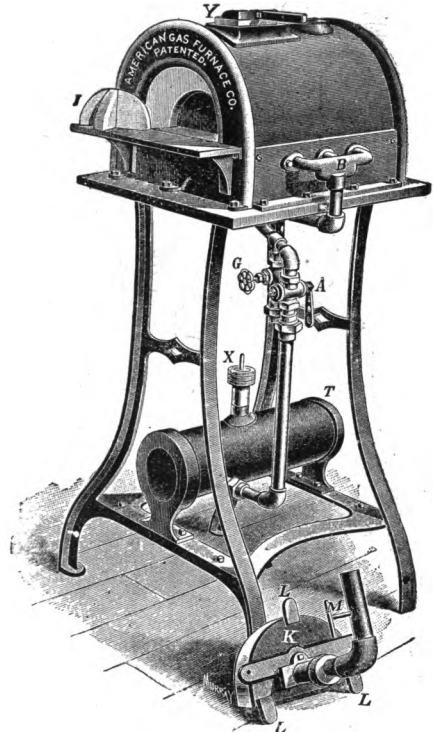
- * 3390a. Furnace "Burro." A very complete and satisfactory portable furnace. It is made of fireclay, in one piece, and securely bound in steel, doors asbestos lined. Weight 100 lbs., taking muffle 6x12x4 inch. Price, with one muffle.....

30.00

FURNACES FOR GAS



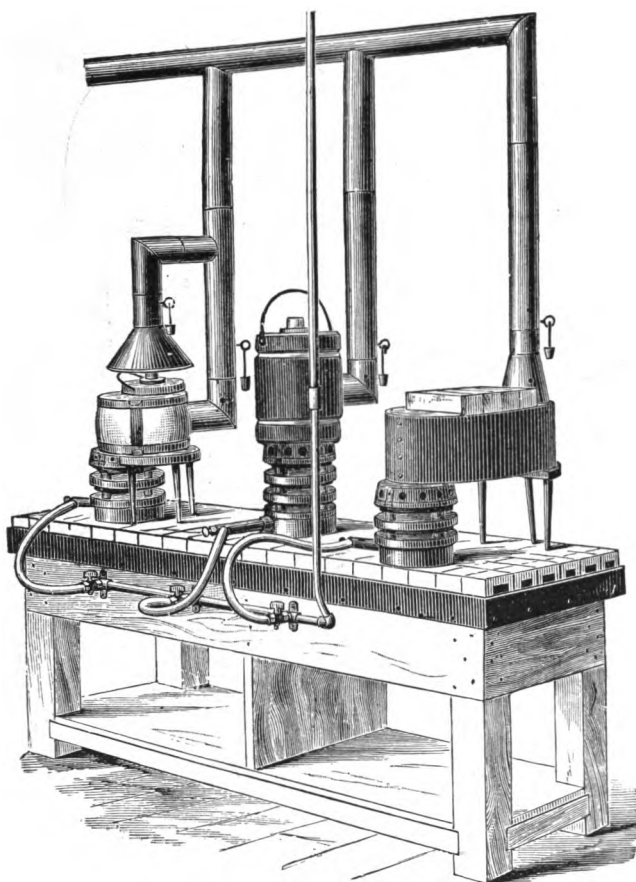
3400-3401



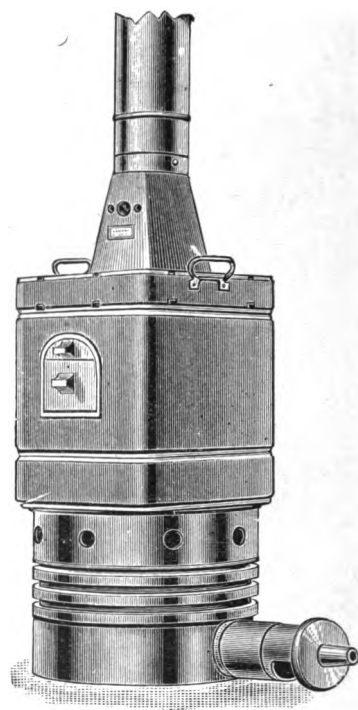
3402-3403

- * 3400. **Furnace, Crucible, No. 2**, for crucibles up to 6 in. high. Gas consumption about 70 cubic feet per hour. Time of melting 5 lbs. copper, 10 minutes 50.00
- * 3401. **Ditto, No. 3**, for crucibles up to 7½ in. high. Gas consumption 100 cubic feet per hour, melts 10 lbs. copper in 25 minutes..... 75.00
- * 3402. **Furnace, Muffle, No. 2**, the standard size, adopted by the U. S. Mint service, and elsewhere. Gas consumption about 80 cubic feet per hour. Muffle, 3¾ in. high, 6¾ in. wide, 12 in. deep. 100.00
Extra Muffle 1.25
- * 3403. **Ditto, No. 3, Muffle**, 11½ in. wide, 14 in. deep, 5 in. high. Gas Consumption per hour about 125 cubic feet..... 150.00
Extra Muffle 3.50

FURNACES FOR GAS



3407



3412

- * 3407. **Furnace, Assayer's Plant.** The furnace at the left (Fletcher No. 63) is for roasting sulphurets, etc.; the center one (Fletcher No. 15) is for crucible fusions, taking No. 3 Plumbago crucible (4 inches deep by $3\frac{3}{4}$ inches across), and the one at the right is No. 630 "Monitor" furnace for scorification and cupellation. The price includes the three furnaces, with plumbago fittings, chimney pipe, the horizontal gas pipe and three No. 114 $\frac{3}{8}$ -inch taps, as illustrated. The vertical gas pipe, rubber tubing for connection and bench are not furnished, except as extras.

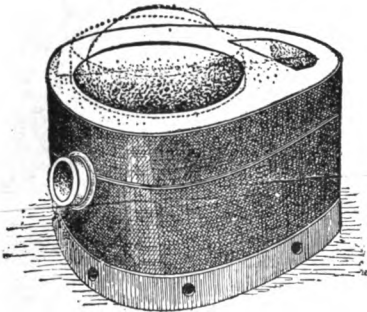
Assayer's Plant, without bench.	50.00
Fire-brick Covered Bench, extra.....	30.00

○* 3412. **Furnaces, Muffle, Fletcher's.** (See illustration page 52.) For assaying, and all purposes where exact temperatures are required, not exceeding the fusing point of copper. The burners for these furnaces are of the same construction as the No. 15. May also be operated by natural gas or gasoline gas.

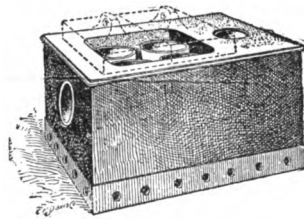
Size No. 3. Inside muffle space $3 \times 4 \times 2\frac{3}{8}$ in. high. Requires $\frac{1}{2}$ in. bore gas pipe and tap. Clay parts $7\frac{3}{4} \times 7\frac{3}{4} \times 8$ in. Inside space $5\frac{1}{4} \times 5\frac{3}{4} \times 5\frac{1}{4}$ in. high.....	17.00
Extra No. 3 Muffles or Domes.....Each	1.00
Size No. 4. Inside muffle space $3\frac{7}{8} \times 5\frac{7}{8} \times 3$ in. high. Requires $\frac{3}{4}$ -in. clear bore gas pipe and tap. Clay parts $10 \times 9 \times 11$ in. Inside space $7\frac{1}{2} \times 6\frac{1}{2} \times 5\frac{3}{4}$ in. high.....	20.00
Extra No. 4 Muffles or Domes.....Each	1.25
Size No. 5. Inside muffle space $4\frac{7}{8} \times 6\frac{5}{8} \times 4$ in. high. Requires 1-in. pipe and tap. Clay parts $11\frac{3}{4} \times 10\frac{3}{4} \times 14$ in. Inside space $8\frac{3}{4} \times 7\frac{3}{4} \times 6\frac{3}{4}$ in. high	30.00
Extra No. 5 Muffles or Domes.....Each	1.50
Size No. 6. Inside muffle space $6 \times 8\frac{1}{2} \times 4\frac{7}{8}$ in. high. Requires 1-in. clear bore gas pipe and tap. Clay parts $14 \times 15\frac{1}{4} \times 17\frac{1}{4}$ in. Inside space $10\frac{1}{4} \times 9\frac{1}{2} \times 8\frac{3}{4}$ in. high	45.00
Extra No. 6 Muffles or Domes.....Each	2.50

Muffle, Dome, Crucible Tongs and 6 feet of chimney pipe are included in the above prices.

FURNACES FOR HYDROCARBON FUELS



3412a

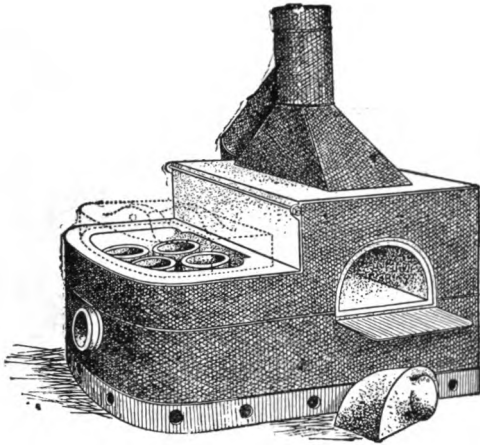


3412b

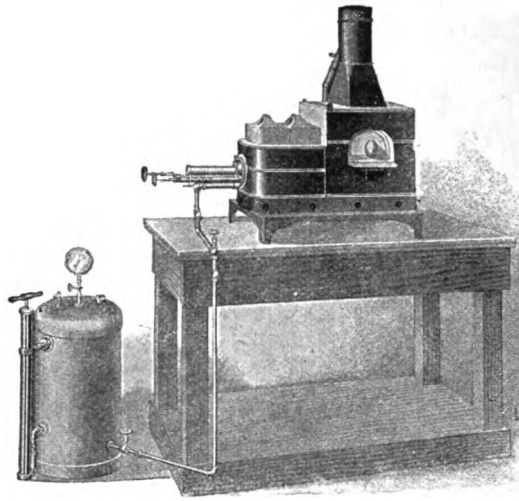
- * 3412a. **Bullion Furnace, No. 10.** Holds black lead crucible and cover No. 9. Inside crucible compartment, diameter 8 in., depth $9\frac{1}{2}$ in., weight (when packed) 111 lbs..... \$14.00
 $1\frac{3}{4}$ in. Cary Burner recommended for use with this furnace.
- Bullion Furnace, No. 11.** Holds black lead crucible and cover No. 25. Inside crucible compartment, diameter 10 in., depth $11\frac{1}{2}$ in., weight (when packed) 194 lbs..... 18.00
 2 in. Cary Burner recommended for use with this furnace.
- * 3412b. **Square Crucible Furnace, No. 3.** Holds 4-F Crucibles. Inside crucible compartment, width $7\frac{1}{4}$ in. length, $7\frac{1}{4}$ in., height $6\frac{1}{2}$ in., weight (when packed) 78 lbs..... 10.00
 $1\frac{1}{2}$ in. Cary Burner recommended for use with this furnace.

CARY COMBINATION FURNACES

Construction permits of melting and cupellation at the same time.



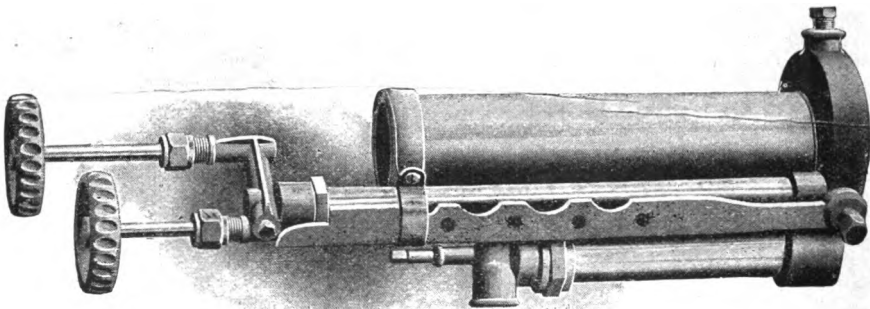
3413c or d



3413c or d, with burner and tank outfit.

- * 3413c. No. 30—Cary Combination Furnace. Holds four F Crucibles. Muffle 6x9x4 inches. Net weight, 160 lbs. Shipping weight, 220 lbs. Two-inch Cary Burner recommended. Price complete (including one muffle and two lengths stove pipe)..... 25.00
- * 3413d. No. 31—Cary Combination Furnace. Holds six F Crucibles. Muffle 7x10x4½ inches. Net weight, 225 lbs. Shipping weight, 315 lbs. A 2¼-inch Cary Burner recommended. Price complete (including one muffle and two lengths of stove pipe)..... 27.50
- Burner & Tank outfits as shown in right hand illustration EXTRA.

CARY HYDROCARBON BURNER



3413c

Perfect combustion is assured as a correct mixture of carbon, hydrogen and oxygen, heated to the proper temperature is obtained.

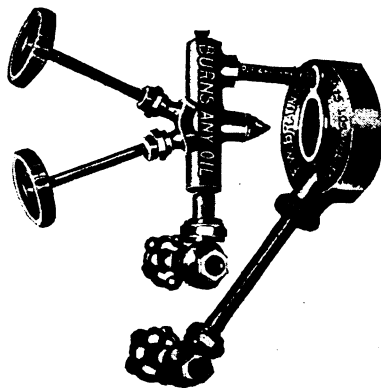
Perfect combustion means intense heat. The flame produced is intensely hot, clean and gives off neither poisonous nor noxious fumes.

The principle worked out in the Cary Burner is radically new, from the fact that the gas and the air are mixed and commingled in an entirely original manner. The mixing tube of the Cary Burner is of such shape and size that the air is drawn into it by the jet of gas under pressure in exactly the right proportions to insure complete combustion.

The Cary Burner gives best results when used in connection with Cary Furnaces as shown above, which have been especially constructed for it.

○ 3413E. Cary Hydrocarbon Burner. (See illustration page 54.)

Inside diameter ...	1¼	1½	1¾	2	2¼ inches.
Length	13	13½	14	15½	17 inches.
Boss used	2½	2¾	2⅞	3⅛	3⅜ inches.
Price	\$10.00	11.00	12.00	13.50	15.00 each.



3413f

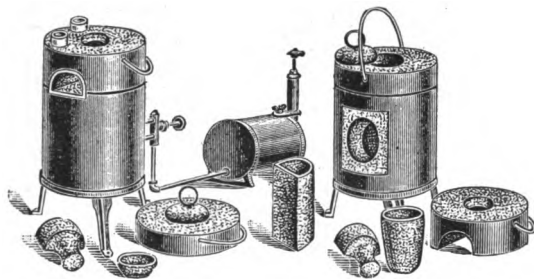
○ 3413F. Marvel Crude Oil Burner.

Distillate or crude oil can be used. Two storage tanks are required—one for oil and one for water. The water is generated into steam as it passes through the interior of the burner face. Steam and oil meet at the central valve, where the oil is atomized.

Price complete, \$15.00.

Set 10-gallon Tanks, \$30.00.

FURNACES FOR HYDROCARBON FUEL

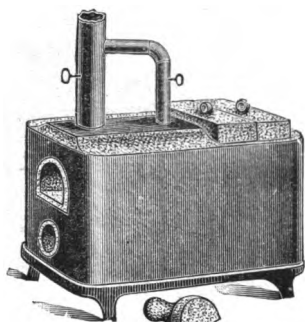


3421b

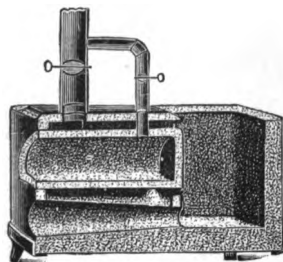
○* 3421b. Hoskins' Combination Furnace No. 1. On the right in this cut is shown the furnace prepared for crucible work. By lifting off the cover and substituting the part with the muffle opening and sliding in the muffle, the furnace is prepared as shown on the left. A scorification or two cupellations may be made in this furnace with perfect satisfaction. Weight complete is 24 pounds. The muffle is 6x3½x2½ and the crucible furnace is 4 inch diameter, 5½ inch deep inside. Price.....

\$7.00

FURNACES FOR HYDROCARBON FUEL



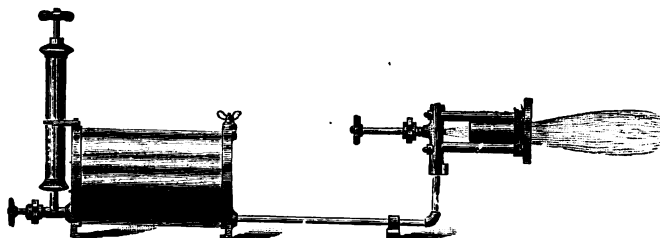
3422



Sectional View.

- | | | |
|-----------|--|-------|
| ○* 3422. | No. 5 Combination Furnace takes one crucible, 20 gram or F, or equivalent size, and a muffle $6 \times 3\frac{1}{2} \times 2\frac{1}{2}$ same as our combination No. 1, and measures 12 inches in length, $8\frac{1}{2}$ in. in width and 16 inches in height. Weight, complete, 30 lbs. Packed, 40 lb. Price | 10.00 |
| ○* 3423. | No. 6 Combination Furnace takes four crucibles, 20 gram or F, or equivalent size (same as our Crucible Furnace No. 4), and muffle $10 \times 6 \times 4$ (same as our No. 3 Muffle Furnace), and measures $20\frac{1}{2}$ inches in length, 12 inches in width and 19 inches in height. Weight, complete, 95 pounds. Packed, 125 pounds.....Price | 20.00 |
| | This muffle may be raised to a good heat for scorifying or crucible work in the muffle in 30 minutes. | |
| ○* 3421a. | Muffle Furnace No. 4. Taking muffle 15 inches long, 9 inches wide and 6 inches high. This furnace is shipped in parts ready to put together and brick up, and requires two No. 3 Blow-pipes, or the No. 4 Blow-pipe. All special interior bricks and full directions for setting and bricking up with common bricks, including one muffle | 25.00 |
| | Extra muffles | 1.50 |
| ○* 3419a. | Crucible Furnace. Taking four No. 9 French crucibles, or equivalent sizes. This is a very efficient furnace for large quantities of work. Price | 12.00 |
| ○* 3420. | Muffle furnaces. No. 2 Muffle Furnace, taking "C" Battersea Muffle, $8 \times 4\frac{3}{4} \times 3$ in. Price | 10.00 |
| | Extra Muffles | .75 |

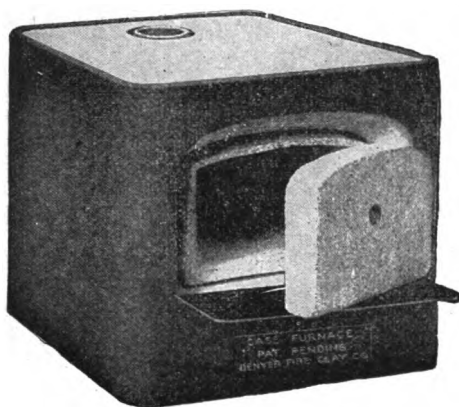
BLOWPIPES FOR ABOVE FURNACES



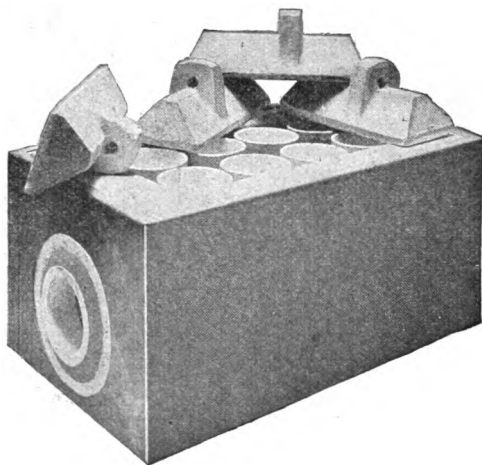
3424-3425

- | | | |
|----------|---|---------|
| ○* 3424. | No. 2 Blow-Pipe , with half-gallon tank, made entirely of brass, very strong; will not rust..... | \$23.00 |
| ○* 3425. | No. 3 Blow-Pipe , with one-gallon tank; otherwise same as No. 2... | 26.00 |

FURNACES FOR HYDROCARBON FUEL



3425a



3425b

○* 3425a. Case Muffle Furnaces.

Prospectors' Furnace No. 11 \$15.00

Size muffle 6x6½ in., capacity four 10-gramme crucibles; net weight 47 lbs.; gross weight 55 lbs.; exterior dimensions, width 10 in., height 10 in., length 9 in. Requires Hoskins burner or equivalent.

No. 12 18.00

Size muffle 6x10 in.; net weight 72 lbs.; gross weight 90 lbs. Requires Hoskins burner or equivalent.

No. 13 32.50

Size muffle 8x12 in.; net weight 115 lbs.; gross weight 150 lbs. Requires 1¼-in. Cary burner or equivalent.

No. 14 40.00

Size muffle 10x16 in.; capacity twelve 20-grammes; net weight 240 lbs.; gross weight 260 lbs. Requires 2¼-in. Cary burner or equivalent.

No. 15 50.00

Size muffle 14x18 in.; capacity twenty 20-grammes; net weight 296 lbs.; gross weight 350 lbs. Requires 2¼-in. Cary burner or equivalent.

○* 3425b. Case Crucible Furnaces.

No. 5 18.00

Capacity 6 "J" crucibles; net weight 145 lbs.; gross weight 210 lbs. Requires 2-in. Cary burner or equivalent.

No. 6 18.00

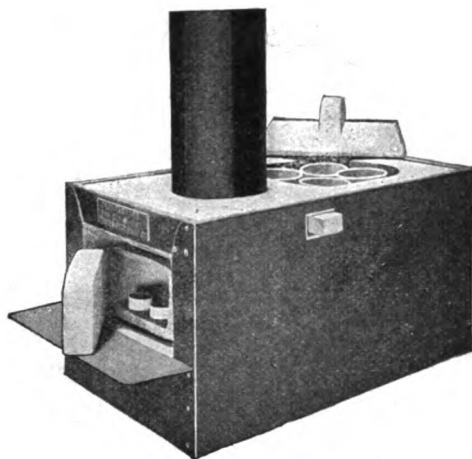
Capacity 8 "F" or 20-gramme crucibles; net weight 80 lbs.; gross weight 95 lbs. Requires 1½-in. Cary burner or equivalent.

No. 7 22.50

Capacity 12 "F" or 20-gramme crucibles; net weight 140 lbs.; gross weight 160 lbs. Requires 2-in. Cary burner or equivalent.

No. 8 26.00

Capacity 16 "F" or 20-gramme crucibles; net weight 170 lbs.; gross weight 200 lbs. Requires 2¼-in. Cary burner or equivalent.



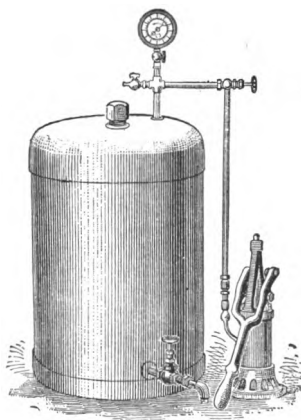
3425c

○* 3425c. Case Combination Furnaces.

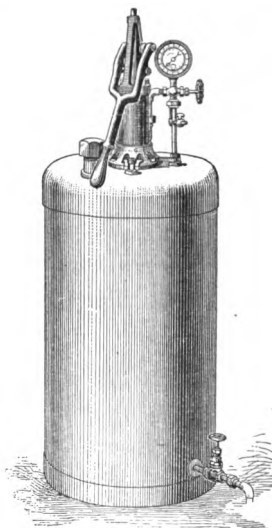
No. 30	22.50
Capacity 2 "G" or 20-gramme crucibles; size muffle 6x8 in.; net weight 69 lbs.; gross weight 90 lbs. Requires Hoskins burner or equivalent.	
No. 31	30.00
Capacity 4 "G" or 20-gramme crucibles; size muffle 6x8 in.; net weight 85 lbs.; gross weight 115 lbs. Requires 1½-in. Cary burner or equivalent.	
No. 32	32.50
Capacity 8 "F" or 20-gramme crucibles; size muffle 6x8 in.; net weight 125 lbs.; gross weight 160 lbs. Requires 2-in. Cary burner or equivalent.	

TANK OUTFITS

Made of heavy tinned iron, and every tank and every fitting thoroughly tested.



3425e



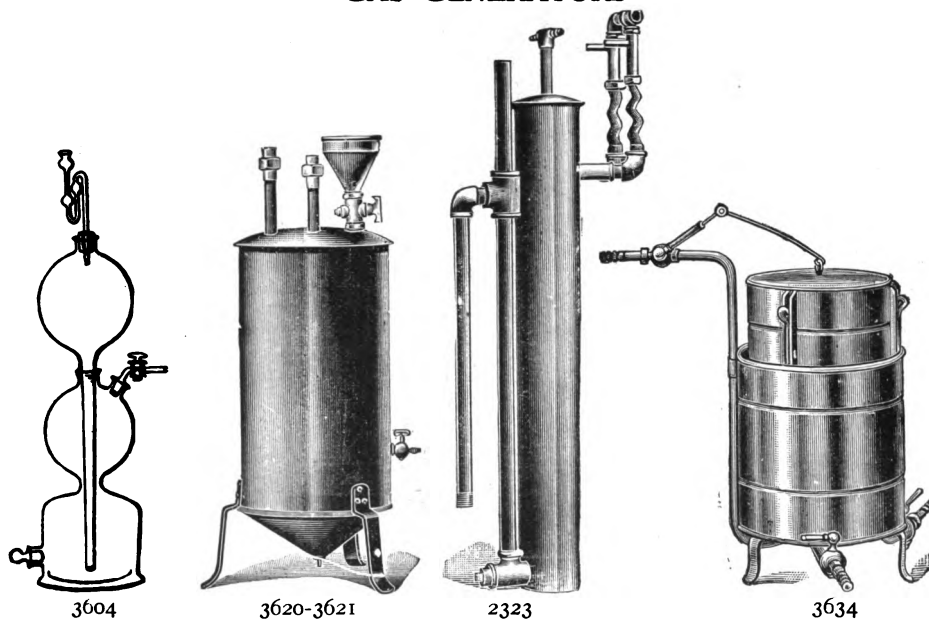
3425f

Capacity of Tank	Dimensions of Tank		Shipping Weight
7 gallons	Diameter	Height	Complete Outfit
	10 in.	21½ in.	70 pounds.
○* 3425d. Tank outfit.	Price, complete, with 12 feet of ¼-in. iron pipe, two swivel joints, pump, and pressure gauge.....		\$18.00

TANK OUTFITS—Continued

Capacity of Tank	Dimensions of Tank		Shipping Weight Complete Outfit
10 gallons	Diameter	Height	105 pounds
○* 3425e. Tank Outfit.	12 in.	23 in.	Price, complete, as illustrated, with 12 feet of ¼-in. iron pipe, two swivel joints, lever pump, and pressure gauge.....
			\$22.00
Capacity of Tank	Dimensions of Tank		Shipping Weight Complete Outfit
12 gallons	Diameter	Height	120 pounds
○* 3425f. Tank Outfit.	12 in.	30 in.	Price, complete, as illustrated, with 12 feet of ¼-in. iron pipe, two swivel joints, lever pump, and pressure gauge.....
			\$25.00
Capacity of Tank	Dimensions of Tank		Shipping Weight Complete Outfit
16 gallons	Diameter	Height	140 pounds
○* 3425g. Tank Outfit.	12 in.	36 in.	Price, complete, with 12 feet of ¼-in. iron pipe, two swivel joints, lever pumps, and pressure gauge.....
			\$30.00

GAS GENERATORS



- * 3604. Generator, Automatic, Kipp's, complete. The most popular ever designed.

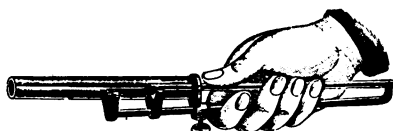
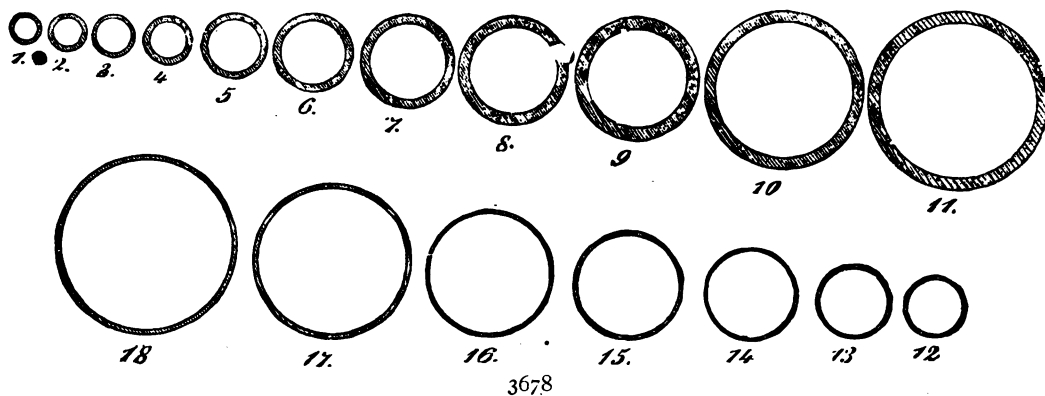
Capacity,	¼ pint.	½ pint.	1 pint.	1 quart.	½ gal.	1 gal.
Each,	\$2.75	3.00	3.75	4.50	6.25	12.00

Generators for Gasoline Gas, E. & A., producing gas for Bunsen burners, etc., by means of compressed air. If water pressure is available, they can be operated by the Richards' apparatus, No. 2323.

- * 3620. Small size, of galvanized iron, for 5 Bunsen burners or 1 blast lamp \$9.00
- * 3621. Large size, of galvanized iron, for 10 Bunsen burners or 2 blast lamps 12.00
- * 2323. Blast Apparatus, Richard's, modified by E. & A., for exhausting and compressing air where hydrant pressure is available, desirable for quick filtering or blower for blast lamps. The larger sizes can be used simultaneously with lamps and filter flasks.
- | | | | |
|--------|--------|-------|----------|
| With | 1 | 2 | 3 pumps. |
| Price, | \$7.50 | 10.00 | 12.50 |
- Illustration shows 2 pumps fitted.
2324. Ditto, with one extra large pump for four blast lamps..... \$16.00

- * 3634. **Gas Pressure Regulator, Murrill's**, (see illustration page 59), for delivering gas at a constant pressure, most convenient and cheapest form; the temperature may be held constant within $0.1^{\circ}\text{C}.$ 6.00
3673. **Glass Plates, blue.** So-called Cobalt glasses; for potassium flame test.
 2x2 2x3 3x3 2x4 3x4 4x4 in.
 \$.04 .05 .06 .06 .08 .10
3674. **Glass Powder** Per lb. .10
3675. **Glass Rods**, from 2 to 30 mm. diameter, in lengths averaging 4 to 5 feet. Best German make..... Per lb. .50
3676. **Glass Stirring Rods**, all sizes; one end round, the other pointed. Best German make..... Per lb. .60
3677. **Glass Rods**, with rubber tips, so-called "policemen." Each .10

GLASS TUBING



- * 3678. **Glass Tubing**, of Best German soft glass, the only kind suitable for bending, glass blowing, or making connections, being strong and elastic. In lengths averaging 5 to $6\frac{1}{2}$ feet, according to diameter.
 Sizes from 3 to 25 mm. external diameter Per lb. \$.50
 Sizes from 26 to 50 mm. external diameter " .60
 Sizes from 51 to 65 mm. external diameter..... .75
3679. **Glass Combustion Tubing**, of hardest Bohemian glass, from the famous factory of Josef Kavalier, for whom we are sole U. S. Agents. This make has always given universal satisfaction and highly recommended, being unexcelled. Regular sizes, 10 to 30 mm. outside diameter Per lb. .75
 Small sizes, 4 to 9 mm. outside diameter, for Marsh's test, blow-piping, etc. " 1.00
 Large sizes, 31 to 40 mm. outside diameter " 1.00
 " " 41 to 50 " " " 1.25
- * 3684. **Glass Tube Cutter**, cuts tubing over $\frac{3}{8}$ in. diameter any length up to 10 inches. 1.25



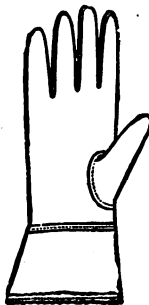
3687



3688



3690a

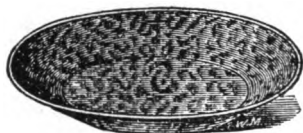


3687a-3689a

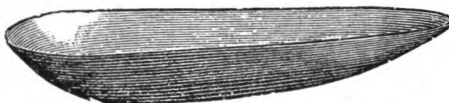


3689-3690

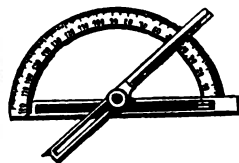
○*	3687.	Gloves, Asbestos Mittens	Per pair,	2.50
○*	3687a.	Gloves, Asbestos, with fingers	"	3.00
○*	3688.	Gloves, Assayers' Buckskin, gauntlets	"	1.50
○*	3689.	Gloves, Rubber, heavy, for acids	"	2.75
○*	3689a.	Ditto, with 5 in. gauntlets	"	3.00
○*	3690.	Gloves, Rubber, cloth lined	"	1.25
○*	3690a.	Ditto with gauntlets	"	1.50



3695



3697



3699

- * 3695. Gold Pans, Miner's washing pans, 16 in. diameter.
 Plain iron Polished iron Agateware Aluminum Steel, copper bottom.
 \$.50 .60 1.20 1.50 2.50
3696. Gold Pans, shallow, 10 in. diameter, enameled iron, so-called "Batea."75
- * 3697. Gold Washing Horns, as used in Mexico Each, .75
3698. Goldbeaters' Skins, 6 in. square Doz., .50
- * 3699. Goenimeter, Hauy's, with movable arms, in case 10.00

GRADUATES



3700



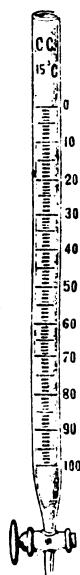
3701

- * 3700. Graduates, Glass, graduated all around.
 Capacity, 1 dram. 2 dram. ½ 1 2 3 4 oz.
 Each \$.20 .25 .15 .15 .18 .20 .25
- Capacity, 6 8 12 16 24 32 64 ounces.
 Each \$.28 .35 .45 .55 .65 .85 ○2.20
- * 3701. Graduates, graduated in cc., best German make.
 Capacity, 25 50 100 150 200 250 500 1000 cc.
 Each, \$.35 .40 .50 .55 .65 .75 1.10 1.65
3702. Graduates, graduated in cc. on one side and ounces on the other.
 Capacity, 1 2 4 8 16 32 oz.
 Each \$.30 .50 .85 1.20 1.75 3.00

GRADUATED WARE



2511



2514



2519-21



2918



2919



2920

- * 2511. Burettes, Mohr's, for use with pinch-cock, as illustrated, fittings charged extra.

	10	25	25	25	50	50	100	100 cc
Subdivisions,	1-20	1-5	1-10	1-20	1-5	1-10	1-5	1-10 cc
Each	\$.60	.60	.65	1.00	1.00	1.25	1.50	2.00

- * 2514. Burettes, Mohr's, with Geissler's glass stop-cock.

	10	25	25	50	50	75	100	100 cc
Subdivisions,	1-10	1-20	1-10	1-5	1-10	1-10	1-5	1-10 cc
Each	\$1.10	1.65	1.35	1.75	1.85	2.25	2.35	2.50

Burettes, Schellbach's, blue enameled strip on white enameled background, giving a definite meniscus.

	Capacity,	25	50	100	100 cc.
	Subdivisions,	1-10	1-10	1-5	1-10 cc.
* 2519.	Plain for pinch-cock,	\$1.20	1.50	2.25	2.50
* 2520.	With stop-cock,	2.00	2.50	3.00	3.50
* 2521.	With patent three way stop-cock,	2.25	3.00	3.75	4.25

- 2534. Burette Floats. Erdmann's. Each .25

- * 2918. Cylinders, lipped, graduated, accurately in cubic centimeters; best German make.

	5	10	15	25	50	100	200 cc.
\$	.22	.28	.30	.35	.40	.60	.70
	250	300	500	1000	2000	4000 cc.	
\$	.85	.90	1.05	2.00	3.00	5.00	

- * 2919. Cylinders, lipped, double graduated, to read up and down; best German make.

	5	10	25	50	100	200	250 cc.
\$	.25	.30	.40	.50	.70	.80	.90
	300	500	1000	2000	4000 cc.		
\$	1.00	1.20	2.25	3.50	6.00		



3317



3316



4258



4263

- * 2920. **Cylinders, glass stoppered, graduated accurately in cubic centimeters. Best German make.**

	5	10	25	50	100	200	250	300	500	1000	2000 cc.
\$	.32	.35	.50	.60	.80	1.00	1.15	1.30	1.50	2.35	3.75

- * 3316. **Flasks, Volumetric, accurately graduated, not stoppered.**

Capacity,	10	20	25	50	100	200 cc.
Each	\$.15	.16	.18	.20	.25	.30
Capacity,	250	300	500	1000	2000 cc.	
Each	\$.40	.45	.50	.65	1.00	

- * 3317. **Flasks, Volumetric, accurately graduated, glass-stoppered.**

Capacity,	10	25	50	100	200 cc.
Each	\$.20	.25	.30	.35	.45
Capacity,	250	300	500	1000	2000 cc.
Each	\$.50	.55	.65	.80	1.20

- * 4258. **Pipettes, Volumetric, accurately graduated.**

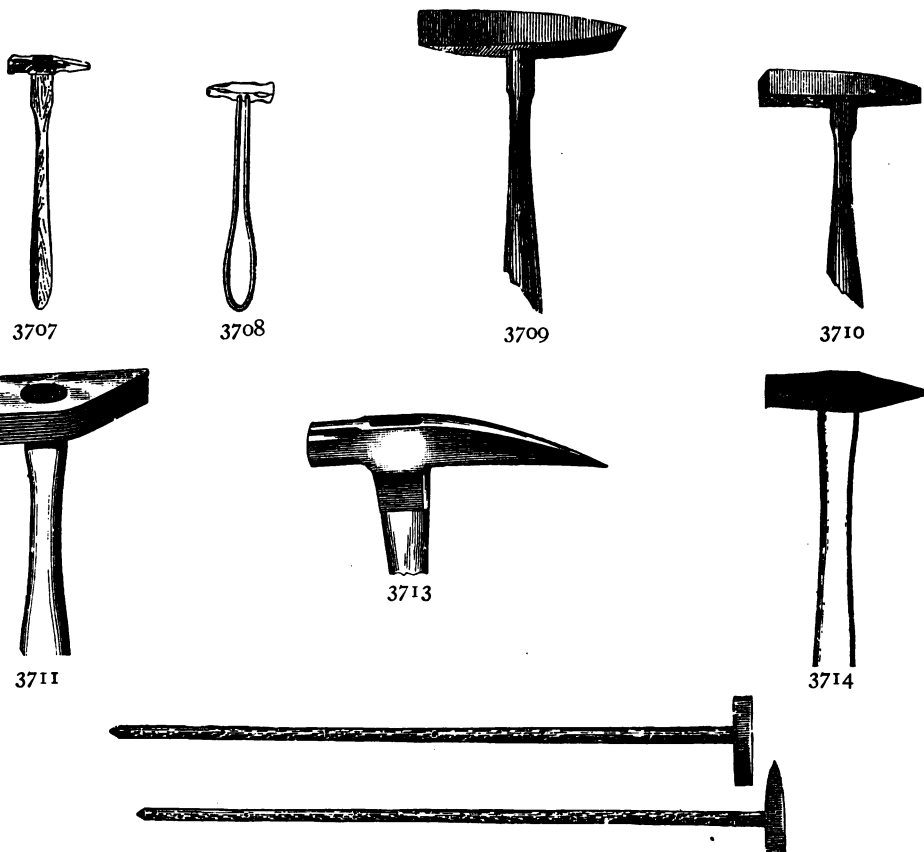
Capacity,	1	2	3	4	5	10	12½	15 cc.
Each	\$.10	.12	.14	.15	.18	.20	.25	.25
Capacity,	20	25	50	75	100	200 cc.		
Each	\$.25	.30	.40	.45	.50	.70		

Pipettes with rubber bulbs, from 10 to 50 cents extra.

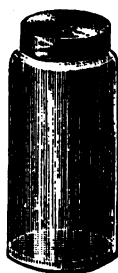
- * 4263. **Pipettes, Mohr's, graduated in cubic centimeters and fractions.**

Capacity,	1	1	2	2	5	5	10	10 cc.
Subdivisions,	1-100	1-10	1-50	1-10	1-20	1-10	1-10	1-20
Each	\$.35	.25	.40	.30	.45	.40	.50	.55
Capacity,	20	25	50	50	100	100 cc.		
Subdivisions,	1-10	1-10	1-5	1-10	1-5	1-10		
Each	\$.60	.70	1.00	1.20	1.75	2.00		

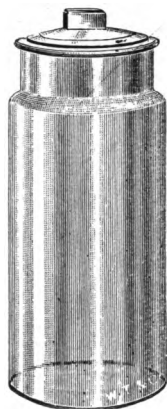
HAMMERS



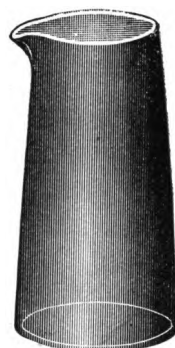
- 3712
- * 3707. Hammer, with wood handle, Plattner's for blowpiping60
 - * 3708. Hammer, with wire handle, Colton's, for blowpiping..... .75
 - * 3709. Hammers, Mineralogical, sharpened both ends.
 Weight about, 11 oz. 1½ lb.
 Each\$1.20 1.50
 - * 3710. Hammers, Mineralogical, Dana's square face
 Face, ¾ 1 1¼ 1½ in.
 Weight about 11 oz. 1 1-16 lb. 2 3-16 lb. 3 3-16 lb.
 Each \$1.20 1.50 2.00 2.50
 - * 3711. Hammers, Mineralogical Maynard's.
 Face, 1 1¼ in.
 Weight, 1 5-16 lb. 2 5-16 lb.
 Each \$1.50 2.25
 - * 3712. Hammers, Prospector's, handle 3 feet long, marked in inches 1.50
 - * 3713. Hammers, Prospector's, heavy, short handle 2.00
 - * 3714. Hammers, wedge shape, for breaking ores, slagging, etc.
 Weight, 7 10 15 18 21 26 oz.
 Each \$.50 .60 .75 .90 1.00 1.50
 - 3715. Hardness' Scale, set of Minerals, 9 specimens, in cardboard box ... 2.00
 Ditto, 10 specimens, diamond included 5.50



3853



3851



4439

—* 3851. Jars, clearest flint glass, with mouths nearly as wide as the jars themselves, and glass stoppers carefully ground in.

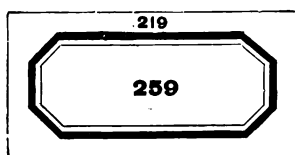
Diameter of body.	Height to Shoulder.	Height to top of Stopper.	Width of Mouth.	Capacity to Neck.	Price per Dozen.	Single.
1½ in.	2 in.	3½ in.	1¼ in.	1½ oz.	\$2.10	.20
1½ in.	3 in.	4½ in.	1¼ in.	2½ oz.	2.25	.22.
2 in.	2½ in.	4¾ in.	1½ in.	3 oz.	2.45	.24
2 in.	3¾ in.	5½ in.	1½ in.	5 oz.	2.63	.26
2 in.	5 in.	6¾ in.	1½ in.	6 oz.	2.95	.28
2½ in.	3½ in.	5½ in.	2 in.	8 oz.	3.15	.30
2½ in.	5 in.	7 in.	2 in.	11 oz.	3.50	.35
2½ in.	7 in.	9 in.	2 in.	16 oz.	3.85	.38
3 in.	4 in.	6¼ in.	2½ in.	14 oz.	4.00	.40
3 in.	6 in.	8¼ in.	2½ in.	20 oz.	4.55	.45
3 in.	8 in.	10¼ in.	2½ in.	28 oz.	5.40	.50
3¾ in.	6 in.	8½ in.	3 in.	29 oz.	5.95	.60
3¾ in.	8 in.	10½ in.	3 in.	40 oz.	7.35	.70
3¾ in.	10 in.	12½ in.	3 in.	52 oz.	8.75	.85
4½ in.	5 in.	7¾ in.	3½ in.	38 oz.	7.50	.75
4½ in.	8 in.	10¾ in.	3½ in.	62 oz.	9.45	.95
4½ in.	12 in.	14¾ in.	3½ in.	92 oz.	11.00	1.10
6 in.	7 in.	10 in.	5 in.	98 oz.	13.25	1.30
6 in.	10 in.	13 in.	5 in.	140 oz.	17.50	1.75
6 in.	12 in.	15 in.	5 in.	168 oz.	18.90	1.90
6 in.	15 in.	18 in.	5 in.	212 oz.	21.70	2.10

* 3853. Jars, Specie, with japanned tin covers.

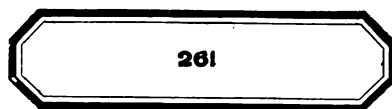
½	1 pint.	1 quart.	½	1	2 gal.
\$.15	.18	.25	.35	.55	.90

* 4439. Precipitating Jars, heavy glass, with lip.

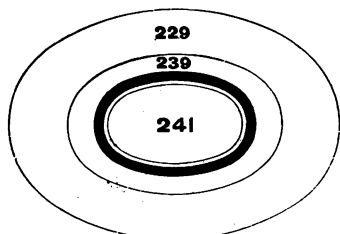
¼ pint	½ pint	1 pint	1 quart	½ gal.	1 gal.	2 gal.	3 gals.
\$.15	.20	.30	.45	.65	1.20	2.00	3.50



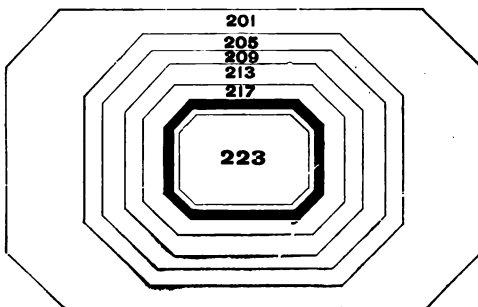
3889



3889



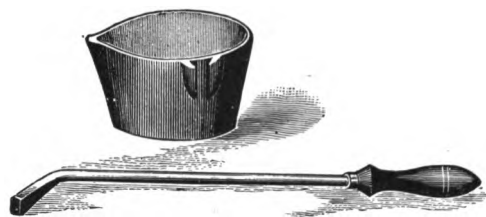
3889



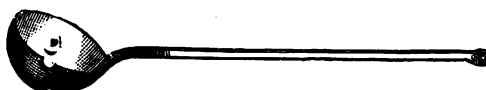
3889



3963



3891



3890



3964

* 3886.—Kettles, for evaporation, of agateware.

	½ gal.	3 qts.	1	2	3	7½ gals.
Diameter,	7	8½	9½	11¼	13	17½ in.
Price	\$.40	.45	.55	.85	1.10	2.85

* 3889. Labels, gummed paper, red border, of any size.

Nos. 201, 205, 209, 213, 217, 219, 223, 229, 239, 241, 259, 261.

Price per box, \$.06; per dozen boxes, \$.65.

No.	2004	2007	2002	2001	2006	2005	2003
Size,	2¾x1	2⅞x1½	3⅞x1	3⅞x1½	4x1½	4x1¾	4¾x2 in.
Per box .	\$.14	.18	.18	.20	.20	.25	.30

* 3890. Ladles, of iron, with pouring lip, for fusing metals, etc.

Diameter,	2½	3	4	5	6 inches.
	\$.25	.30	.35	.50	.60

○* 3891. Ladles, with detachable handles, cast iron. One handle will fit any ladle, and can be removed while it is on the fire.

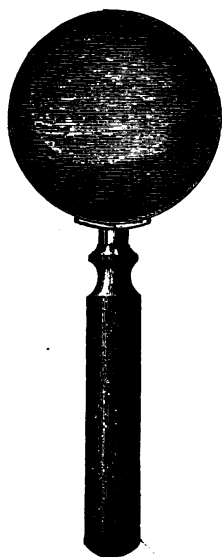
No. 14L. Ladle, 4½x2¾ inches inside	.40
No. 14M. Ladle, 4⅞x2½ inches inside	.35
No. 14S. Ladle, 4x2⅞ inches inside	.25
No. 14H. Handle.	Extra, .25

* 3963. Magnets, straight,

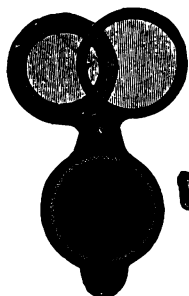
	4	5	6	8	10 in.
	\$.25	.30	.35	.40	.50

* 3964. Magnets, horse shoe, best English make.

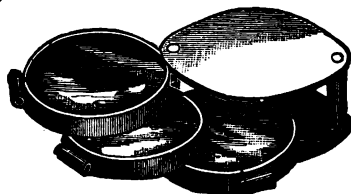
	2	3	4	5	6	8	10	12 in.
	\$.08	.10	.15	.25	.45	.90	1.75	2.50



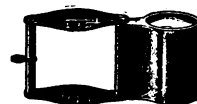
3968



3969



3970



3971

- * 3968. Magnifiers or Reading glasses, nickel-plated metal frame and wood handle.

Diameter of glass,	2	2½	3	3½	4 in.
	\$.35	.45	.65	.90	1.20

- * 3969. Magnifiers, Pocket, in vulcanite mounting, folding.

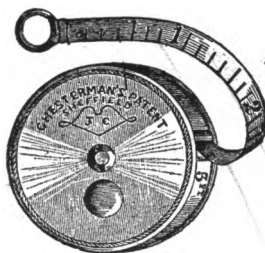
With	1	2	3 glasses
Each	\$.30	.35	.50

- * 3970. Magnifiers, pocket, in nickel-plated folding case.

With	1	2	3 glasses
Each	\$.75	1.00	1.35

- * 3971. Magnifiers, pocket, Coddington's, very powerful, in nickel-plated folding case.

Diameter	10	15	20	25 mm.
Each	\$1.25	1.50	1.75	2.00



3988-89

- * 3988. Measuring Tape, steel, inches and centimeters, German silver case; best English make.

Length,	3	6	12 feet
Each	\$1.50	2.25	3.50

- * 3989. Measuring Tape, steel, ¾ in. wide, inches only, divided in tenths or twelfths, in case.

Length,	25	50	100 feet
Each	\$4.50	7.20	12.80



3992

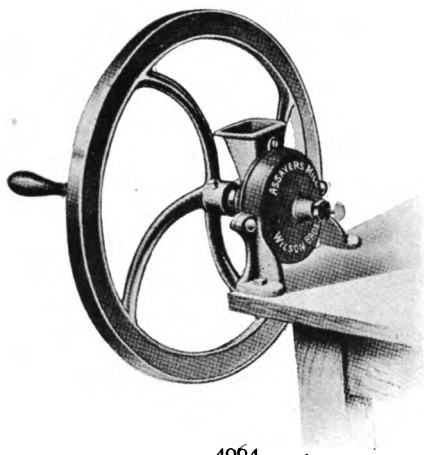
- * 3992. Measures, seamless, of agateware.

Capacity,	$\frac{1}{4}$	$\frac{1}{2}$	1 pint.	1 quart.	$\frac{1}{2}$	1 gal.
Each	\$.30	.40	.50	.70	.90	1.20

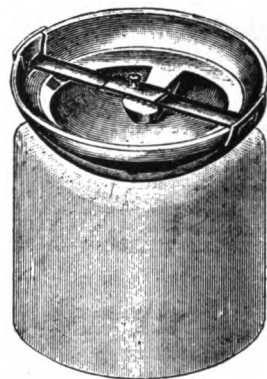
- 3993. Measures, copper.

Capacity,	$\frac{1}{4}$	$\frac{1}{2}$	1	2 pint	$\frac{1}{2}$	1	2 gal.
Each	\$.50	.60	.75	1.00	1.35	2.00	5.00

MILLS



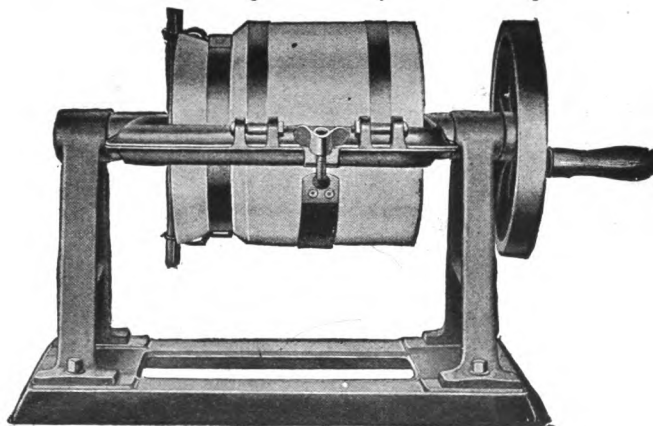
4064



4068

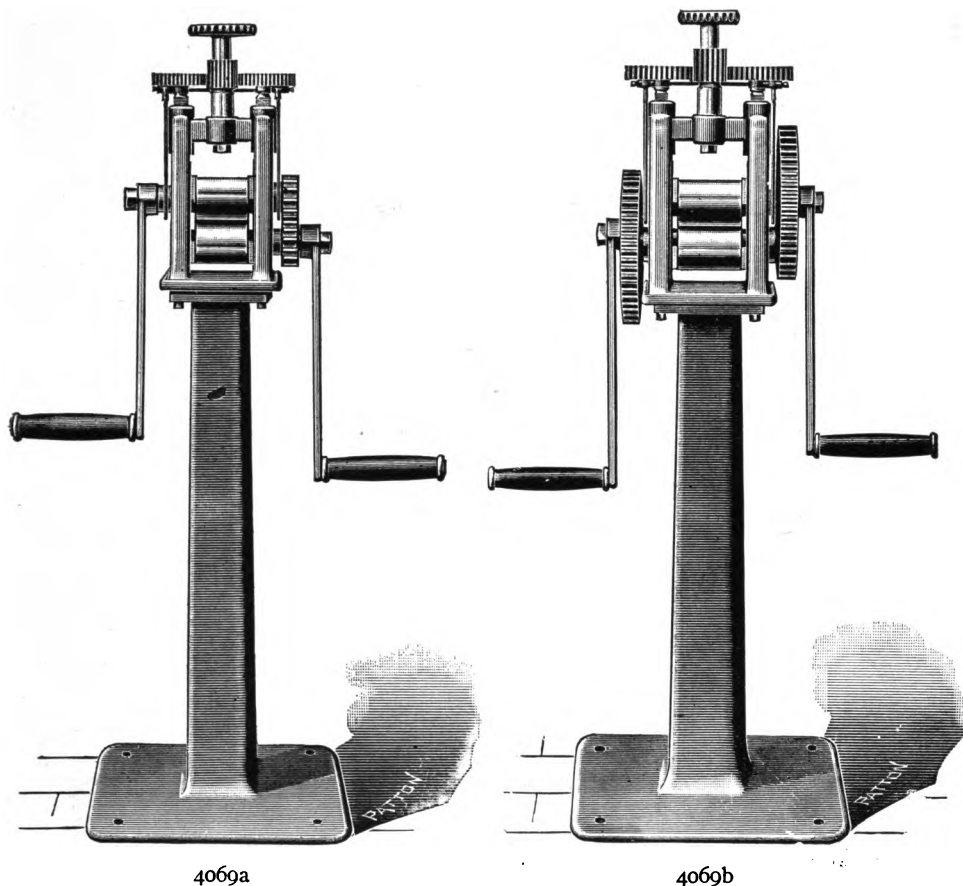
- * 4064. Mill, Assayers; for grinding ores, etc., latest model. The grinding surfaces are of the very hardest metal. \$10.00
- * 4068. Mills, Ball Mill, all porcelain, with clamp; for grinding ores; prices do not include mounting.

	Small.	Medium.	Large.
Capacity,	1 quart.	1 gal.	4 gal.
Each	\$3.00	7.00	30.00



4068a

- * 4068a. Ditto, Medium Size, mounted, complete. 30.00
- Porcelain balls for Mills No. 4068 to 4068a. Per lb.25



○* **4069a. Rolling Mills, Hand.** Improved **Single-gear**ed, with flat rolls.

These Mills are built from newly-designed patterns, and are heavy and well proportioned, with many desirable improvements.

The Rolls are made from the finest crucible steel, carefully hardened, ground, and polished, and are fully warranted. They easily interchange with other rolls.

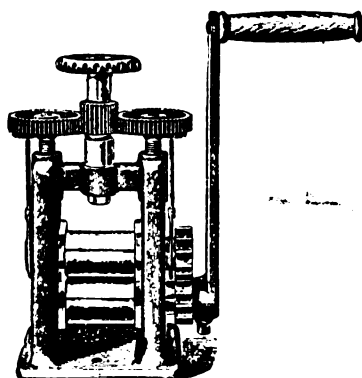
Nos.	2	3	4
Size,	1½x2	2¼x3	2¾x4 in. long
Weight,	80	145	190 pounds
Each	\$30.00	50.00	75.00

○* **4069b. Rolling Mills, Hand.** Improved **Double-gear**ed, with flat rolls.

These Mills have all the latest improvements found in the single-gear mills, including our improved lifting device, which, by dispensing with all inner boxes and springs, makes it convenient to interchange rolls.

The Gears are machine cut from solid stock and have a ratio of 4 to 1.

Nos.	3	4
Size,	2¼x3	2¾x4 in. long
Weight,	180	225 pounds
Each	\$75.00	100.00



4069c

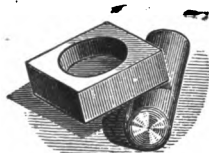
○* 4069c. Rolling Mill. The "Crown."

The illustration shows a newly designed mill. The rolls are 2 inches in diameter by 3 inches long, perfectly hardened, ground and polished. Cut pinions of steel. Geared pressure screws, with an improved lifting device without springs. The rolls can be quickly removed from the frame. Weight, 45 pounds. Price. \$30.00

MORTARS



4083



4084



4081



4080



4086



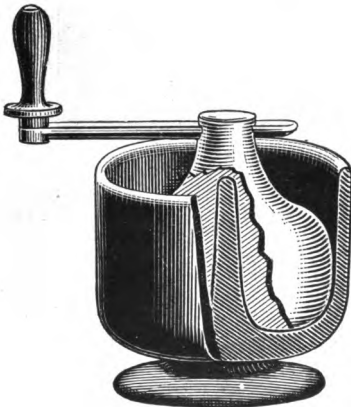
4087

* 4080. Mortars, agate, with pestles, of superior quality; dimensions are outside measurements.

1¼	1½	1¾	2	2½	3	3½ in.
\$1.10	1.60	1.80	2.15	3.50	5.00	7.75
4	4½	5	5½	5¾	6 in	
\$9.50	13.50	18.00	26.00	29.50	35.00	

Agate Mortars, mounted in polished wooden base, and pestle in wooden handle\$1.50 to 3.00 extra.
Handle only50 to 1.00 extra.

- * 4081. **Agate Mortar Grinder**, designed to do away with the laborious work of hand-grinding; very strong and compact. Experience in many iron laboratories has proved, that a great deal more work can be accomplished, and that it will grind so fine that often a perfect solution of ores can be effected without the process of fusion. Grinding is accomplished by revolving the mortar, while the pestle is revolving still more rapidly and given a motion of translation across the face of the mortar. Grinding is done 10 times as rapidly as by hand.
Price, including agate mortar, $4\frac{1}{4}$ diameter..... \$60.00
(See illustration page 70.)
- * 4083. **Mortars, Diamond, Plattner's**, of hardest steel and superior make.
(See illustration page 70.)
Small Large
\$3.60 5.50
- * 4084. **Mortar, Diamond, Leed's**, of hardest steel. (See illustration page 70) \$2.00
- * 4086. **Mortars, Iron, urn shape, with pestle.** (See illustration page 70.)
Capacity, $\frac{1}{2}$ 1 2 pints $\frac{1}{2}$ 1 2 gal.
Dimensions, 4x4 5x5 6x6 7x6 $\frac{1}{2}$ 8x8 $\frac{1}{2}$ 11x10 in.
\$.40 .50 .60 .90 1.65 2.25
- * 4087. **Mortars, Iron, bell shape, with pestle.** (See illustration page 70.)
Capacity, $\frac{1}{2}$ 1 2 pints $\frac{1}{2}$ 1 gal.
Dimensions, 4 $\frac{3}{4}$ x3 4 $\frac{1}{4}$ x4 5 $\frac{1}{2}$ x5 6 $\frac{1}{2}$ x6 8x7 in.
\$.40 .50 .75 1.25 1.75
Capacity, 2 3 4 gals.
Dimensions, 10 $\frac{1}{2}$ x9 12 $\frac{1}{2}$ x11 $\frac{1}{2}$ 13 $\frac{1}{2}$ x12 $\frac{1}{2}$ in.
\$3.00 4.75 5.50
4088. **Mortars, chilled, almost equal to steel**, for powdering hard ores, with extra large pestles. (See illustration page 70.)
Capacity, 3 2 1 $\frac{1}{2}$ gal.
Size, 12 $\frac{1}{2}$ x11 $\frac{1}{2}$ 10 $\frac{1}{2}$ x9 8x7 6 $\frac{1}{2}$ x6 in.
Price..... \$6.50 4.50 3.00 2.00
- * 4091. **Mortars, iron, Buck's**, for grinding and amalgamating. By the rotation of the muller a large sample of quartz can be ground in contact with quicksilver. (See illustration page 70.)
Diameter, 6 8 in.
Each \$6.00 8.00



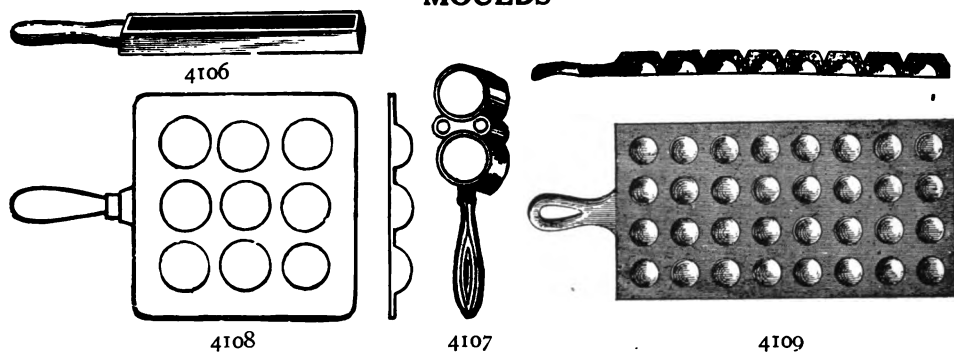
4091



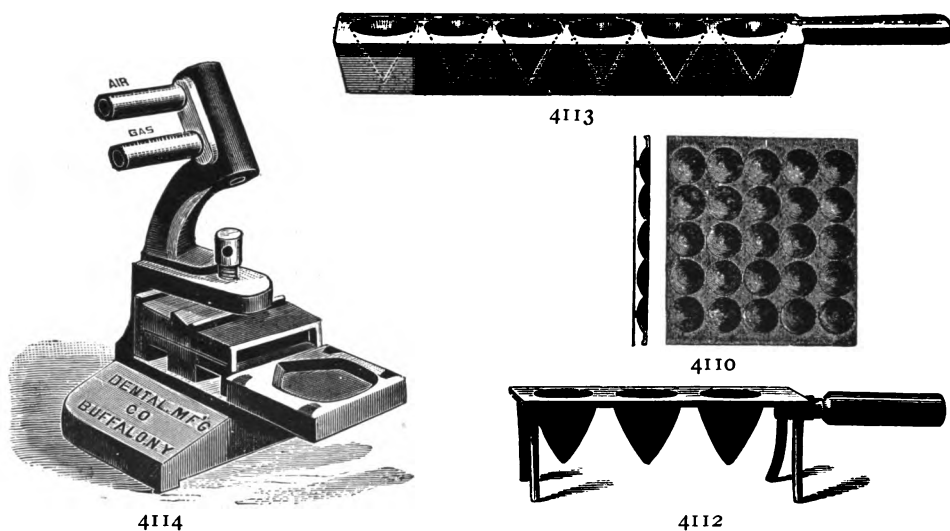
4096

- * 4096. **Mortars, Wedgewood**, pestle with wooden handle.
- | | | | | | | | | |
|----------------|--------|-----------------|-----------------|-----------------|------------------|------|------|-----------------|
| No. | 0000 | 000 | 00 | 0 | 1 | 2 | 3 | 4 |
| Diameter, | 3 | 3 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 4 | 4 $\frac{1}{2}$ | 5 | 6 | 6 $\frac{1}{2}$ |
| Each | \$.35 | .40 | .45 | .50 | .60 | .65 | .85 | 1.00 |
| No. | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Diameter, | 7 | 8 | 8 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 12 | 13 | 14 in. |
| Each | \$1.25 | 1.50 | 1.80 | 2.25 | 3.00 | 3.75 | 4.00 | 5.00 |

MOULDS

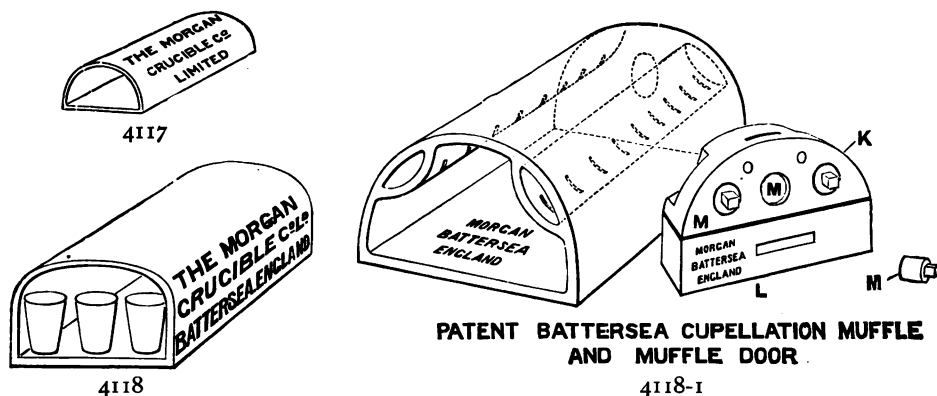


- * 4106. Moulds, Ingot, with handle.
 Length, 3 4 7½ 8½ 9 in.
 Width, 1 2¼ 1 3 3 in.
 Depth, 1 1½ ½ 1 2 in.
 Each \$.65 .90 1.00 1.50 2.00
- * 4107. Mould, Pouring, of iron, California pattern80
- * 4108. Moulds, Pouring, of iron, with handle.
 With 6 9 12 cavities.
 Each \$.60 .90 1.00
- * 4109. Mould, Pouring, of iron, new pattern, with handle and 32 spherical depressions for crucible or scorification assays 4.50



- * 4110. Mould, Pouring, of iron, no handle, with 25 spherical depressions75
- * 4111. Moulds, Pouring, of copper, with handle and 16 spherical depressions.6.00
- * 4112. Moulds, Pouring, of iron, with handle.
 With 3 6 12 conical depressions.
 Each \$1.00 1.50 2.00
- * 4113. Mould, Pouring, of heavy solid iron, with 2 handles and 6 conical depressions. The slag will cool rapidly 2.50
- * 4114. Mould, Fletcher's, melting arrangement with blowpipe combined, for obtaining ingots of gold, silver, etc., rapidly, without the use of a furnace. Complete. 3.00

MUFFLES



Measurements given are outside dimensions. Muffles of special sizes and best material to order within 30 days, at reasonable rates.

—* 4117. Muffles, Battersea, regular form, the best made.

No.	A	B	C	D	E	F
Length,	7	7½	8	8½	9	10 in.
Width,	3½	4¾	4¾	5	5½	6 in.
Height,	2½	2¾	3	3¼	3¾	4 in.
Each . . .	\$.35	.45	.55	.65	.70	.80

No.	G	H	J	K	L
Length,	11	10½	12	14	15
Width,	4	5¼	6	8	9
Height,	3½	3¾	4	5	6
Each . . .	\$.60	.65	.80	1.20	1.30

—* 4118. Muffles, Battersea, "High Side" or Colorado shape. This shape permits crucible work being done in the muffles.

No.	KK	LL	PP	RR	SS	WW
Length,	14	15	18	18	19	18 in.
Width,	8	9	11	12	12	14 in.
Height,	5	6	7¾	7¾	7¾	7 in.
Each	\$1.20	1.30	2.50	2.50	2.50	3.00

* 4118-I. Muffles, New Patent Battersea. (Imported only to order.) The object in this improved muffle is to provide means whereby during cupellation, the simultaneous access of the air to all parts of the interior of the muffle may be secured and the actual supply readily controlled.

The arrangement consists of a specially fitted muffle door communicating with perforated channels contained in the wall of the muffle.

PATENT BATTERSEA MUFFLES.

Size	Length inches	Width inches	Height inches	Size	Length inches	Width inches	Height inches
AY	4	2¾	2½	E	9	5½	3¾
AX	5	2¾	2½	F	10	6	4
AZ	6	3½	2½	G	11	4	3¾
A	7	3½	2½	H	10½	5¼	3¾
B	7½	4¾	2¾	J	12	6	4
C	8	4¾	3	K	14	8	5
D	8½	5	3¼	L	15	9	6

Prices on application.

○ 4121. Muffles, Denver.

No.	Length.	Width.	Height.	Each.
H L L	15	9	6 in.	1.50
H mint,	10½	5¼	3¾ "	.75
J "	12	6	4 "	.90
K K with high sides,	12	8	5 "	1.15
L L " " "	15	9	5¾ "	1.50

Less than one dozen, 20 per cent. higher price.

○ 4121a. Muffles for Hoskins' Furnaces.

	Length	Width	Height	Each
C	8	4¾	3 in.	.60
F.	10	6	4	.75

4123. Muffle Plates, Battersea make.

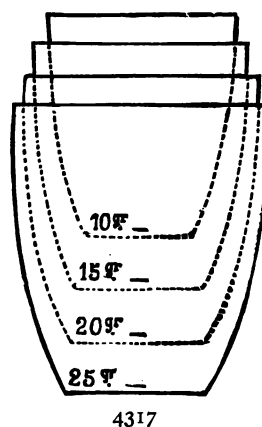
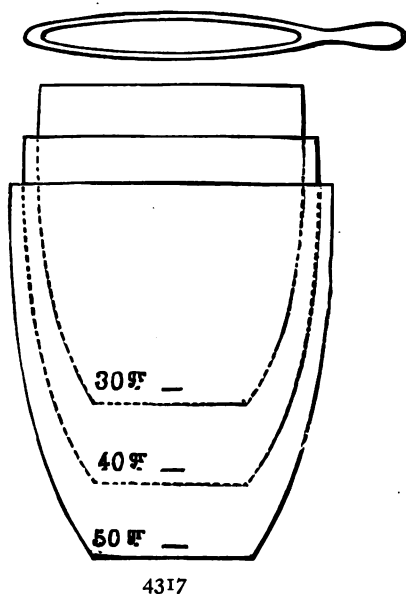
Size,	5x12	6x12	7x12 in.
Each	\$.40	.45	.50

○ 4171-1. Paper Bags, Manila for ore samples, 4½x7. Per 1,000 3.50

4172. Paper, Glazed, white, black or colored Quire .30

PLATINUM.

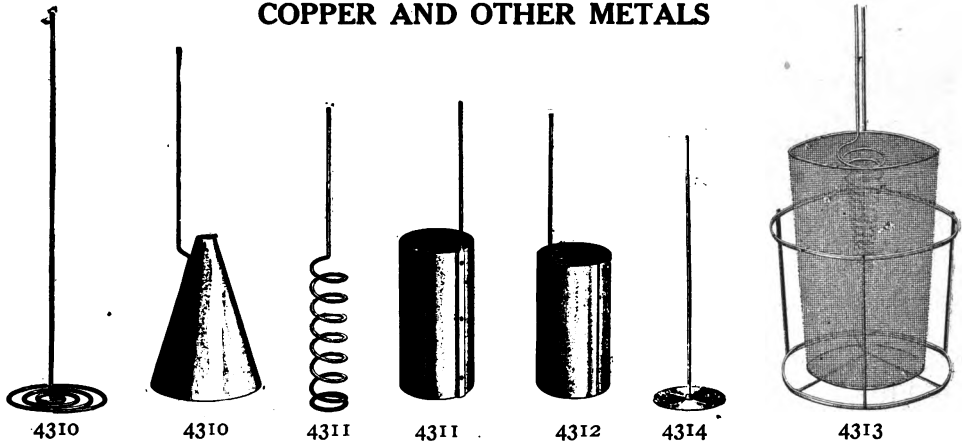
Our platinum is chemically pure, containing no indium or other metals. Regular crucibles and dishes are hammered not spun, and will last twice as long as spun ware. The weights given below are only approximate, and prices are charged accordingly to the market value of platinum, plus cost of manufacture.



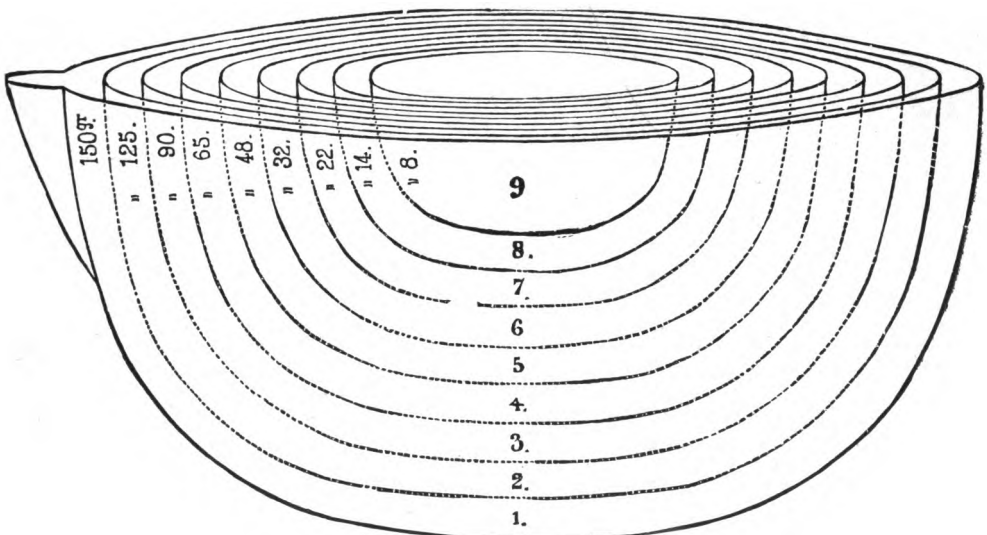
○* 4317. Platinum Crucibles with Covers, hammered.. Illustrations show full size of each crucible; all sizes listed are constantly on hand; larger sizes made to order.

Capacity,	10	15	20	25	30	40	50	60	75 cc.
Approximate Weight	10	15	20	25	30	40	50	60	75 grammes
Weights specified includes covers.									

PLATINUM APPARATUS FOR ELECTROLYTIC DEPOSITION OF COPPER AND OTHER METALS



- * 4310. **Platinum Cone and Spiral**, rivetted or soldered. Price according to weight (15 to 25 grammes each.)
- * 4311. **Platinum Cylinder and Spiral**, cylinder 2 in. high, 1 in. diameter; rivetted or soldered. Price according to weight (about 15 grammes each.)
- * 4312. **Platinum Cylinders**, set of two, $2 \times \frac{3}{4}$ in. and 2×1 in., rivetted or soldered; weight from 10 to 15 grammes each.
- * 4313. **Platinum Gauze Cathode and Platinum Fire Frame Anode**, Hol-lard's. Advantages are rapidity of deposit, which adheres firmly; prevention of bubbles on surface of cathode. Weight about 40 grammes complete.
- * 4314. **Platinum Plate with Rod**, Classen's, weight about 20 grammes.



4322

- * 4322. **Platinum Dishes, hammered**, with large spout; regular shape. Il-lustrations show full size of each dish, approximate weight is also stated.

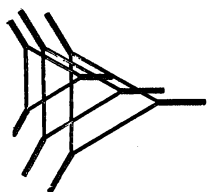
No.	1	2	3	4	5	6	7	8	9
Capacity about,	400	370	270	200	125	80	45	30	20 cc.
Approximate Weight,	150	125	90	65	48	32	22	14	8 gram.

Larger sizes of regular weight, and dishes of lighter weight, made to order.

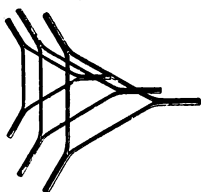
- **4323. Platinum Dishes, for blow-piping, small with handle;** $1\frac{1}{4}$ in. outside, 1 in. inside diam. Similar in shape to cover of No. 4317 crucible but slightly deeper. Weight about 5 grammes.
- **4291. Platinum Foil, heavy,** 4-1000 in. to 6-1000 in. thick.
- **4292. Platinum Foil, medium,** for blowpiping, 3-1000 in. thick, about 1 gramme per square inch.
- **4293. Platinum Foil, medium,** for blowpiping, 2-1000 in. thick, about $\frac{3}{4}$ gramme per square inch.
- **4294. Platinum Foil, thin,** for battery purposes, 1-1000 in. thick.
- **4295. Platinum Foil, extra thin, tissue,** 1-2000 in. thick.

Platinum Wire Table, giving diameter and approximate weight.

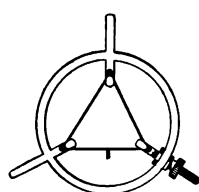
Gauge No.	10	11	12	13	14	15	16
Diameter in Dec. In.	.106	.091	.081	.072	.064	.057	.051 in.
Approximate Weight in grammes, per foot.	<div style="display: flex; align-items: center;"> } <div> 37.5 28.0 22.0 17.5 14.0 11.0 9.0 </div> </div>						
Gauge No.	17	18	19	20	21	22	
Diameter in Dec. In.	.045	.041	.036	.032	.029	.026 in.	
Approximate Weight in grammes, per foot.	<div style="display: flex; align-items: center;"> } <div> 7.0 5.7 4.4 3.4 2.9 2.3 </div> </div>						
Gauge No.	23	24	25	26	27	28	
Diameter in Dec. In.	.023	.020	.018	.016	.014	.013 in.	
Approximate Weight in grammes, per foot.	<div style="display: flex; align-items: center;"> } <div> 1.8 1.4 1.1 0.9 0.7 0.6 </div> </div>						
Gauge No.	29	30	31	32	33	34	35
Diameter in Dec. In.	.0115	.010	.009	.008	.007	.0063	.0056 in.
Approximate Weight in grammes, per foot.	<div style="display: flex; align-items: center;"> } <div> 0.45 0.35 0.28 0.22 0.17 0.15 0.11 </div> </div>						



4349



4350



4351

- * **4349. Platinum Triangles, ends twisted, regular sizes are made of No. 15 wire.**
 To fit 10 15 20 25 30 40 cc. crucible
 Approximate weight, 11 11.5 12 12.5 13 15 grammes
- * **4350. Platinum Triangles, same sizes as above, ends fused instead of twisted.**
- * **4351. Platinum Triangles, Fresenius' new style. Frame with adjustable arms.** \$1.00
 Platinum triangle extra, according to weight, average about 4 grammes.

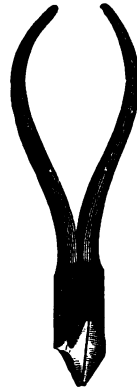
PLIERS



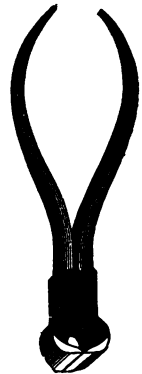
4356



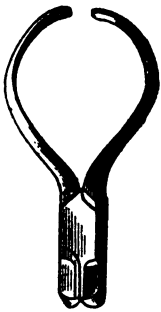
4357



4358



4359



4360



4361



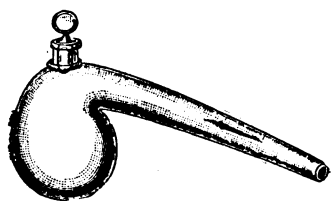
4361a

- | | | | | |
|--|--------|-----|-----|--------|
| * 4356. Pliers, flat nose, steel faced. | | | | |
| Size, | 4 | 5 | 6 | 8 in. |
| Each, | \$.40 | .50 | .60 | .80 |
| * 4357. Pliers, flat nose, side cutting, steel faced. | | | | |
| Size, | 4 | 5 | 6 | 8 in. |
| Each, | \$.65 | .70 | .80 | 1.40 |
| * 4358. Pliers, side cutting. | | | | |
| Size, | 4 | 5 | 6 | 8 in. |
| Each, | \$.70 | .75 | .85 | 1.50 |
| * 4359. Pliers, end cutting. | | | | |
| Size, | 4 | 5 | 6 | 8 in. |
| Each, | \$.70 | .75 | .85 | 1.50 |
| * 4360. Pliers, cutting edge parallel, for cutting minerals..... | | | | \$1.00 |
| * 4361. Pliers, button, straight, for lifting cupel beads..... | | | | .50 |
| * 4361a. Pliers, button, turned down nose, for holding buttons while brushing..... | | | | .50 |
| 4362. Pliers, button, straight, nickel-plated..... | | | | .75 |
| 4369. Poker, of iron, for furnaces..... | | | | .50 |

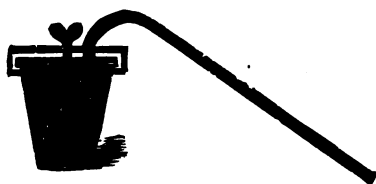
RETORTS



4514



4515



4521

* 4514. Retorts, plain, best Bohemian glass, J. Kavalier's make.

Capacity,	1	2	4	8	16	24 oz.
Each,	\$.12	.14	.15	.22	.28	.30
Capacity,	1 qt.	½	1	1½	2 gal.	
Each,	\$.35	.45	.75	1.00	1.25	

* 4515. Retorts, with tubulature and glass stopper, best Bohemian glass, J. Kavalier's make.

Capacity,	1	2	4	6	8	12	16	24 oz.	1 qt.
Each,	\$.20	.20	.25	.30	.35	.40	.45	.50	.55
Capacity,	1½ qt.	½	1	1½	2	3	5	8 gal.	
Each,	\$.65	.75	1.00	1.25	1.50	2.50	4.50	6.00	

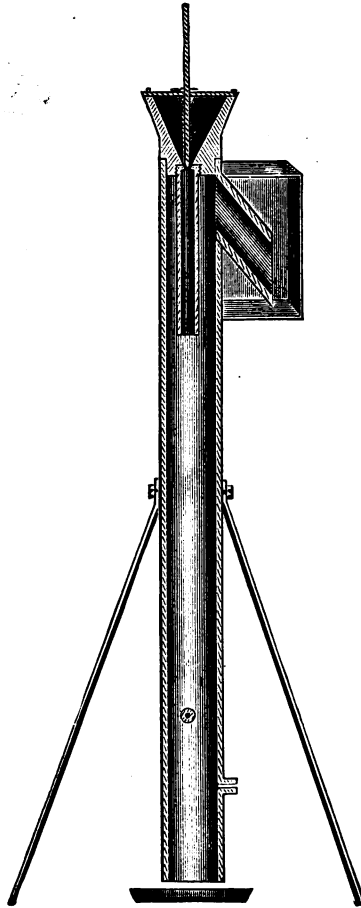
— 4519. Retorts, fire-clay, Battersea, tubulated and stoppered.

Capacity,	½	1	2	4 gal.
Each,	\$2.30	3.10	6.25	9.00

* 4521. Retorts, iron, for distilling mercury, etc.; cover removable, fastened by screw clamp; delivering tube ground into the cover.

¼	½	1 pt.	1 qt.	½	1	2 gal.
\$2.00	2.25	2.50	3.00	4.50	6.50	8.50

THE WICKHAM ORE ROASTER



O* 4532a. Wickham Ore Roaster \$25.00

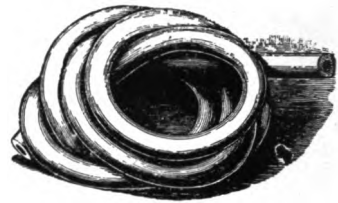
The ore to be roasted should be ground to pass a 30 or 40 mesh sieve, as we find that size most satisfactory for the roasting operation. By weighing out from 2 to 4 Assay Ton, and placing same in the hopper of the machine, it is necessary to notice that the needle of the hopper is down tight before the ore is inserted therein. The two openings on the side of the main tube are for the insertion of two Bunsen Burners, which can be ignited and inserted in the above tube. The ore is gradually allowed to fall through the column of flame of the stand-pipe, by giving the needle valve an up and down motion as well as a rotary. The upward draft caused by the flame in the stand-pipe divides the ore into two parts; the finer material is carried up and out in the square chamber at the side of the roaster which acts as a settling chamber, and prevents mechanical loss. The coarser ore passing through the flame is received on a suitable pan placed at the bottom of the stand-pipe. If the ore after passing through the above treatment does not appear thoroughly roasted, the above operations can be repeated. It is well in order to clean the stand-pipe thoroughly to tap it sharply with a light hammer, or remove the adhering particles inside with a round brush made of wire. The material is now ready for mixing with the necessary flux for the assay. It is advisable to roast from 4 to 6 Assay Tons so as to overcome any slight loss that might occur from any of the ore clinging to the side of the stand-pipe. This mechanical loss, if any, is no greater than that occurred by roasting the ore in a roasting dish. The inventor has made a series of assays regarding the above, and finds that equally high results are obtained by this method compared with the dish roasting process.



4533



4537



4540

—* 4533. Roasting Dishes, Battersea make.

Diameter,	2½	3	4	5	6	7 in.
Per dozen,	\$.65	.80	.90	1.10	2.10	2.75

Rolling Mills. See page 69.

- * 4537. Rubber Stoppers, solid, also with one or two holes, of best rubber. We claim for our rubber stoppers that they are the most durable ever produced, and that they remain soft longer than any other on the market. Each stopper of this quality bears our mark E. & A. All sizes constantly on hand. Per lb. \$2.00

When ordering, specify whether solid, 1 hole or 2 hole stoppers are wanted.

Number,	00	0	1	2	3	4	5	6
Diameter, large end,	14	17	18	20	23	25	27	32 mm.
Diameter, small end,	10	12	15	16.5	18	20	23	26 "
Number to pound,	132	85	60	50	40	32	27	20
Approximate price,	\$.25	.39	.52	.60	.78	1.00	1.23	1.65 per doz.

Number,	7	8	9	10	11	11½	12	13
Diameter, large end,	37	41	45	50	56	64	65	70 mm.
Diameter, small end,	30	33	37	42	50	52	59	60 "
Number to pound,	14	12	9	7	6	5	4¼	4
Approximate price,	\$2.35	2.75	3.65	4.72	5.50	5.75	6.75	7.25 per doz.

Rubber Tubing, best white, hand made and cloth finished, which prevents splitting. This tubing is of extra quality, being made especially for laboratory use and is much more durable than any other on the market, for general purposes.

4539. Light wall, usual thickness. Per lb. 1.50
 Inside diameter, 1-8 3-16 1-4 5-16 3-8 1-2 5-8 3-4 1 in.
 Approximate price, per ft. \$.05 .07 .10 .12 .15 .18 .22 .30 .40

- * 4540. Double thickness, in general use for burner connections and best for this purpose, as it does not kink. Per lb. 1.50
 Inside diameter, 1-8 3-16 1-4 5-16 3-8 1-2 in.
 Approximate price, per foot, \$.06 .12 .16 .20 .24 .28
 Inside diameter, 5-8 3-4 1 1 1-2 2 in.
 Approximate price, per foot, \$.30 .35 .55 .80 1.35

4541. Rubber Tubing, heavy walled, white, machine made, smooth finish, for lead burners use, etc.; can be had in one continuous length of 100 feet; ¼ in. inside diameter. Per lb.75

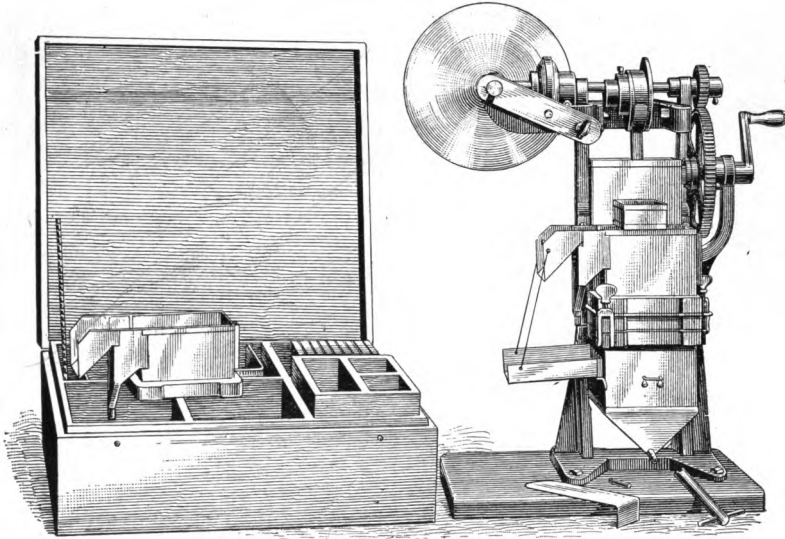
- 4542. Rubber Tubing, extra heavy wall, black; so-called pressure tubing, as used for vacuum pump connections, etc. Per lb. 1.50
 Inside diameter, 1-8 3-16 1-4 3-8 1-2 in.
 Approximate price, per foot, \$.14 .16 .30 .45 .70

- Rubber Tubing, black, best imported, of pure unvulcanized gum, seamless and will not tear. Per lb. 4.00
 Approximate prices per foot are also quoted.

- 4543. Light wall, \$.06 .07 .09 .11 .13 .17 .27 .37 .50 .75 per foot.
 ○ 4544. Heavy wall, .07 .08 .11 .15 .18 .27 .40 .60 .70 1.00 per foot.

- Rubber Tubing, red or antimony, best imported. Per lb. 4.50
 Approximate prices per foot are also quoted.

- 4545. Light wall, \$.05 .08 .10 .13 .16 .20 .35 .45 .55 .85 per foot.
 ○ 4546. Heavy wall, .08 .09 .13 .20 .23 .35 .48 .60 .80 1.10 per foot.

SAMPLING APPARATUS**Vezin Jig**

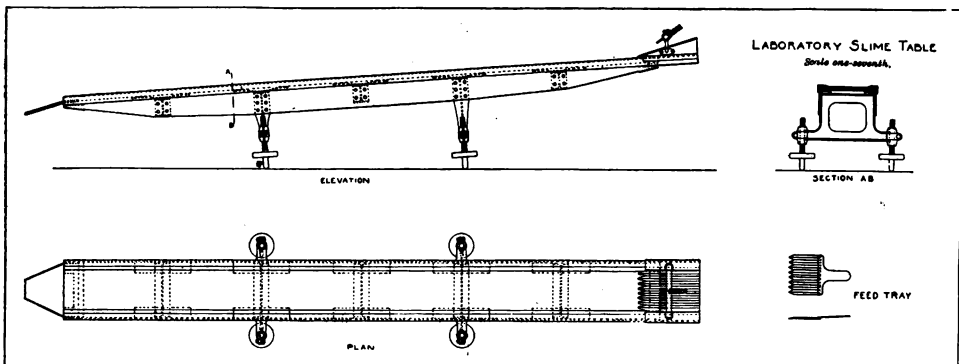
4551a

According to Prof. Henry S. Monroe, Columbia University, this is a very useful apparatus for treating fine and coarse sands and meal in the assay. These jigs have become a very important piece of apparatus and are constructed to be operated by hand or power. Directions are furnished with each complete apparatus, which consists of the jig itself, and assorted sieves and a container for same.

○* 4551a. Vezin Jig. Price complete..... \$80.00

LABORATORY SLIME TABLE

According to Prof. HENRY S. MUNROE, of Columbia University.



4551b

○ This apparatus has been constructed to supplement the work of the Vezin Laboratory Jig for treating slimes. It consists of a table made of a strong metallic frame about five feet long, in which a specially ground glass plate is securely held. In place of the glass plate, flat plates of pine, maple, slate or other material may be secured. The glass plate is removable and held in position by springs. Directions written by Prof. Henry S. Munroe are furnished with the apparatus. Other data for these instruments will be found in the paper by Prof. Richards' "Sorting before Sizing" (Trans. Amer. Inst., Mining Engineers, Vol. 27, page 76.)

○ 4551b. Laboratory Slime Table \$100.00

Umpire Ore Sampler



4551c

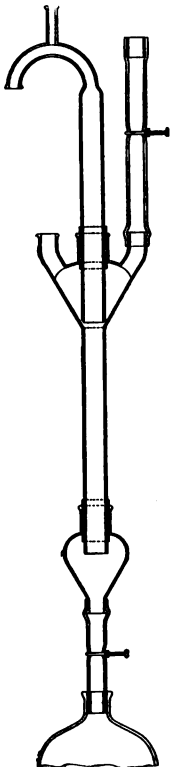


4551d

Each bucket divided into four parts, two closed and two open. The sample is halved in the upper bucket and again in the lower, allowing one-quarter of the original to fall into the receptacle, thus **insuring** an **accurate** and **impartial** sample.

All parts easily accessible for cleaning.

- * 4551c. Umpire Ore Sampler, hand machine. Shipping weight, 125 lbs. Price **\$30.00**
- * 4551d. Umpire Ore Sampler, power machine. Shipping w'ght, 145 lbs. Price **40.00**



4551g

* **4551g. Laboratory Classifier.** According to Prof. Henry S. Munroe, of Columbia University, this apparatus is used in mining laboratories to prepare samples of crushed ore for jiggling, vanning or washing in a batea or on small laboratory tables.

By treating and retreating the contents of the flask with water currents of increasing velocity, any desired subdivision of the ore may be secured. Instead of one apparatus, a number of these classifiers may be used together, the first with a current of maximum velocity discharging its lighter product into the funnel of the next, and so on through a series of apparatus.

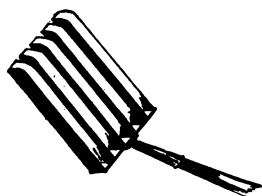
Directions written by Prof. Munroe are furnished with each apparatus which is supplied in three dimensions:

- Size A—Diameter of circulating tube, 1 inch, **\$10.00**
- Size B—Diameter of circulating tube, 1½ inches, **12.00**
- Size C—Diameter of circulating tube, 2 inches, **14.00**

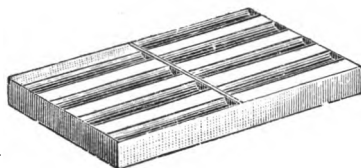
Accessories consisting of:

- 5 one-gallon bottles.
- 11 ft.—¾ inches heavy rubber tubing.
- 13 extra large screwcocks.
- 13 brass thimbles.

We also furnish an iron support for mountain classifier firmly at **\$3.00 extra**.



4551e



4553

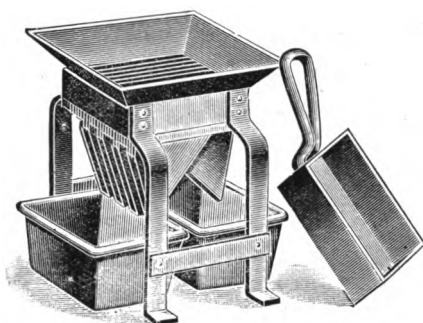


4554

- * **4551e. Sample Shovel;** yields fairer samples in much less time than by the old way; complete with handle.

Small, 10x10 in., \$6.50.

Large, 12x12 in., \$8.50.



4551f

- **4551f. "Jones Ore Sampler."** Its construction facilitates quick and even sampling. It consists of hopper set in 4-legged support, scoop, and 4 sampling pans and brush. All parts can be easily cleaned.

Size,	4	6	10 in.
Trays,	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$ in.
Price	\$8.00	10.00	15.00 each

- 4552. Sampling Pans, for ore, deep, seamless, tin.**

Diameter,	5	6	7	$8\frac{1}{2}$	10 in.
	\$.10	.12	.15	.20	.25

- * **4553. Sampling Trays, of tin.**

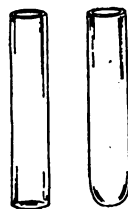
Size,	$5\frac{1}{2} \times 8$	9×12 in.
Each,	\$.45	.65

- * **4554. Sampling Pans, of Russian sheet iron, shallow form.**

Diameter,	2	$2\frac{1}{2}$	3	4	5	6	7	8	10 in.
Each,	\$.08	.08	.08	.10	.12	.15	.20	.25	.40



4637



4639



4643

4647

4646

- * 4637. Spatulas, horn, superior quality, blade on both ends.

Length,	4	5	6	7	8	9	10	12 in.
Each,	\$.08	.10	.12	.15	.20	.25	.35	.50

Ditto, with spoon one end, see Spoons.

4638. Spatulas, solid nickel, blade on both ends.

Length,	4¾	6	7	8½ in.
Each,	\$.35	.50	.60	.80

Spatulas, platinum, see Platinum.

- * 4639. Spatulas, porcelain, blade on both ends.

Length,	5¾	7¾	8½	10	12¼	14½	16½ in.
Each,	\$.30	.35	.45	.60	.70	.90	1.15

- * 4644. Spatulas, flexible steel blade and steel handle, one piece, nickel-plated.

Length of blade,	3	4	5	6	7	8	9	10	12 in.
Each,	\$.40	.45	.50	.55	.60	.70	.95	1.25	2.15

- * 4646. Specimen Tubes, so-called Shell Vials, round bottom, medium heavy wall. Dimensions given are outside measurements. Corks to fit are charged extra.

Height,	2	2	2	2	3	3	3	3	4	4	4 in.
Diameter,	¾	½	⅝	¾	¾	½	⅝	¾	¾	½	¾ in.
Per gross,	\$1.75	2.00	2.25	2.50	1.85	2.25	2.50	2.75	2.25	2.50	2.75
Height,	4	4	5	5	5	5	5	6	6	6	8 in.
Diameter,	¾	1	¾	½	⅝	¾	1	⅝	¾	1	1 in.
Per gross,	\$3.35	4.25	2.50	2.75	4.00	4.50	5.00	4.25	5.25	6.00	8.50

- * 4647. Specimen Tubes, flat bottom, same prices and dimensions as No. 4646; any other sizes made to order at short notice.



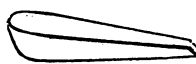
4575



4576



4567



4572

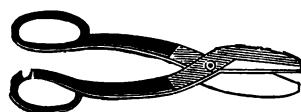


4573

- * 4567. Scoop, of agate-ware, 3x5½ in. \$.20
- 4568. Scoops, of copper, fitting Beaufay's Crucibles, for filling in the charges.
 Small.
 Medium.
 Large.
- * 4572. Scoop, of horn, 2¼ in. long.15
- * 4573. Scoops, of horn, for mixing.
 Approximate size of bowl, 4x2¾ 3x2⅝ 2½x1⅞ in.
 \$.30 .20 .15
- * 4575. Scoops, of tinned iron, for mixing.
 Width of bowl, 5¼ 5¾ 7 in.
 Each, \$.35 .40 .60
- * 4576. Scorifiers, Battersea make, the best made.
 Diameter, 1 1¼ 1½ 2 2¼ 2½ 2¾ in.
 Per 100, \$1.15 1.15 1.15 1.16 1.17 1.30 1.60
 Diameter, 3 3½ 4 5 in.
 Per 100, \$2.00 2.40 2.90 3.30
- 4577. Scorifiers, Denver make.
 Diameter, 2¼ 2½ 3 4 in.
 Per 100, \$1.20 1.30 2.00 3.00
 Less than small original barrel, 20 per cent. higher.



4594



4595

* 4594. Shears, Brown's, polished steel, heavy.

	6	7	8	10 in.
	\$1.00	1.20	1.40	1.60

* 4595. Shears, steel (hand shears), heavy.

	11½	12½	14	16 in.
	\$1.30	1.80	2.25	2.50

SIEVES



4600-2-3



4605

4597. Sieves, brass gauze, wooden frame; best make.

Mesher,	10	20	40	60	80	100
a. Diameter 5 in.,	\$.28	.28	.35	.40	.60	.80
b. Diameter 6 in.,	.35	.35	.40	.45	.70	.95
c. Diameter 8 in.,	.45	.45	.50	.60	.95	1.25
d. Diameter 10 in.,	.55	.55	.60	.75	1.15	1.65
e. Diameter 12 in.,	.60	.60	.75	.95	1.40	2.00

4598. Sieves, iron gauze, wooden frame; best make.

Mesher,	6	10	14	18
a. Diameter 12 in.,	\$.60	.60	.60	.60
b. Diameter 15 in.,	.70	.70	.70	.70
c. Diameter 18 in.,	.80	.80	.80	.80
d. Diameter 20 in.,	1.00	1.00	1.00	1.00

4599. Sieves, brass gauze, tin plate frame; best make.

Mesher,	20	40	60	80	100
a. Diameter 5 in.,	\$.60	.70	.85	1.00	1.25
b. Diameter 8 in.,	.90	1.00	1.15	1.50	2.00
Metal cover and pan bottom, 5 inch.....	Extra				\$.70
Metal cover and pan bottom, 8 inch.....	Extra				.90

* 4600. Sieves as No. 4599. In set of five nested 20-100 mesh.

Diameter,	5	8 in.
Per set,	\$4.75	9.00

4602. Sieves, brass gauze, seamless brass frame.

Mesher,	20	40	60	80	100
a. Diameter 5 in.,	\$1.05	1.10	1.15	1.20	1.30
b. Diameter 8 in.,	1.60	1.65	1.80	1.90	2.20
Metal cover and pan bottom, 5 in.....	Extra				\$.75
Metal cover and pan bottom, 8 in.....	Extra				1.00

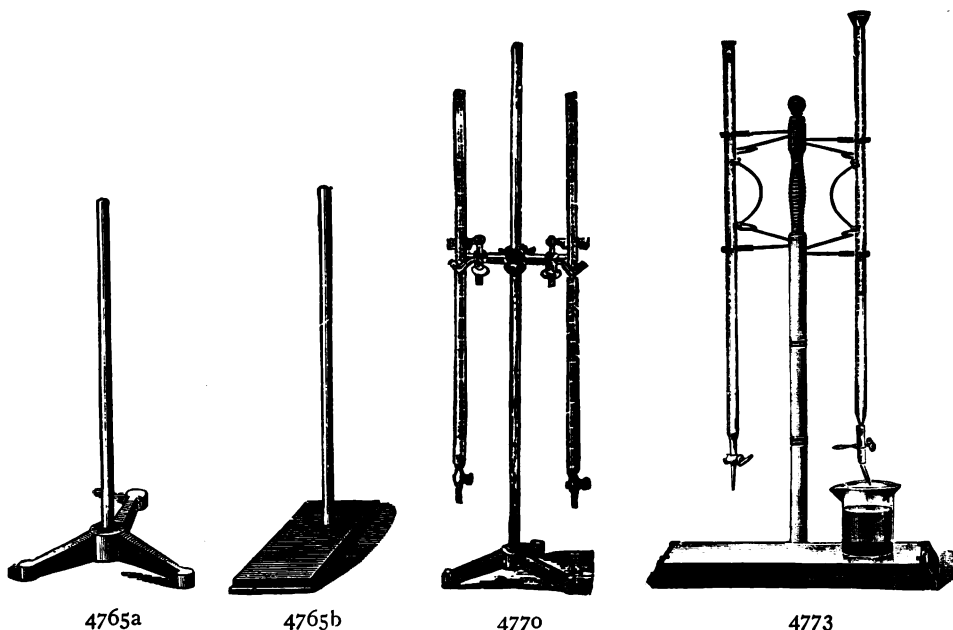
* 4603. Sieves as No. 4602. In set of five nested 20-100 mesh.

Diameter,	5	8 in.
Per set,	\$6.50	10.00

○* 4605. Sifter, Hunter's Lightning, No. 0, for hand use. One sieve goes with each sifter. Any size mesh can be used, but an extra charge will be made for sieves finer than 50 mesh.....

\$7.50

SUPPORTS



** 4765. Supports, triangular or square iron base and rod, for use with clamps, rings, etc.

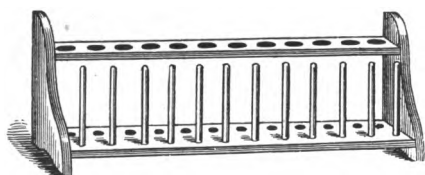
	Small	Medium	Large	Large, extra heavy
Length of rod,	12	20	36	36 in
a. With triangular base,	\$.25	.35	.55	1.00
b. With square base,	6x4½ \$.25	7½x5½ .35	9x6½ .55	9x6½ in 1.00

* 4770. Support, for burettes, iron, Hofmann's, with double clamp for two burettes \$1.00

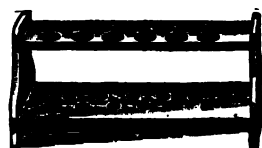
* 4773. Support, for burettes, Chaddock's. The clamp is extremely simple, and perfect in action. A pressure of the thumb opens the rubber-covered V-shaped jaws, which close upon the burette and hold it firm and true.

Hardwood base with square milk glass plate, roughened for writing on, and easily removed in case of breakage; clamp of japanned spring wire, and maple rod.

a. For one burette	\$1.50
b. For two burettes	2.50
c. For three burettes	4.00
d. For three burettes, revolving	5.00



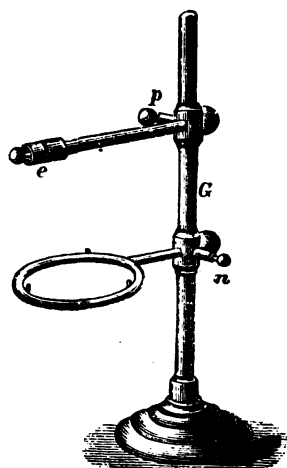
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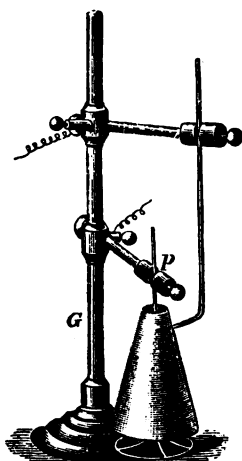
4832

- * 4831. Support, for 12 test tubes, in one row, with 12 pins60
 * 4832. Support, for 12 test tubes, 12 holes in two rows35

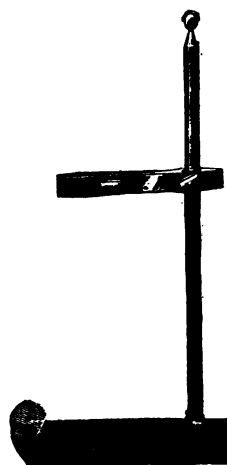
SUPPORTS



3146



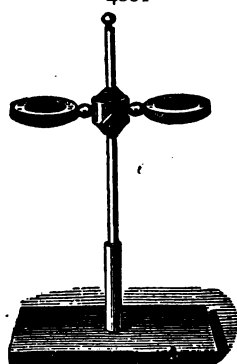
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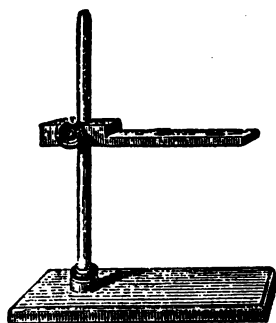
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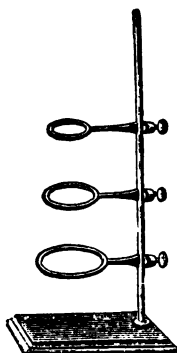
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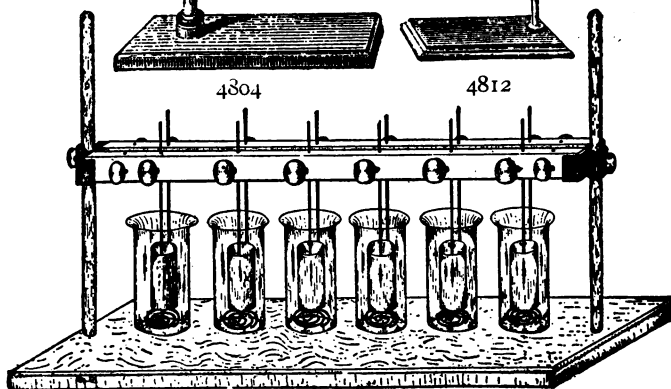
4802



4804



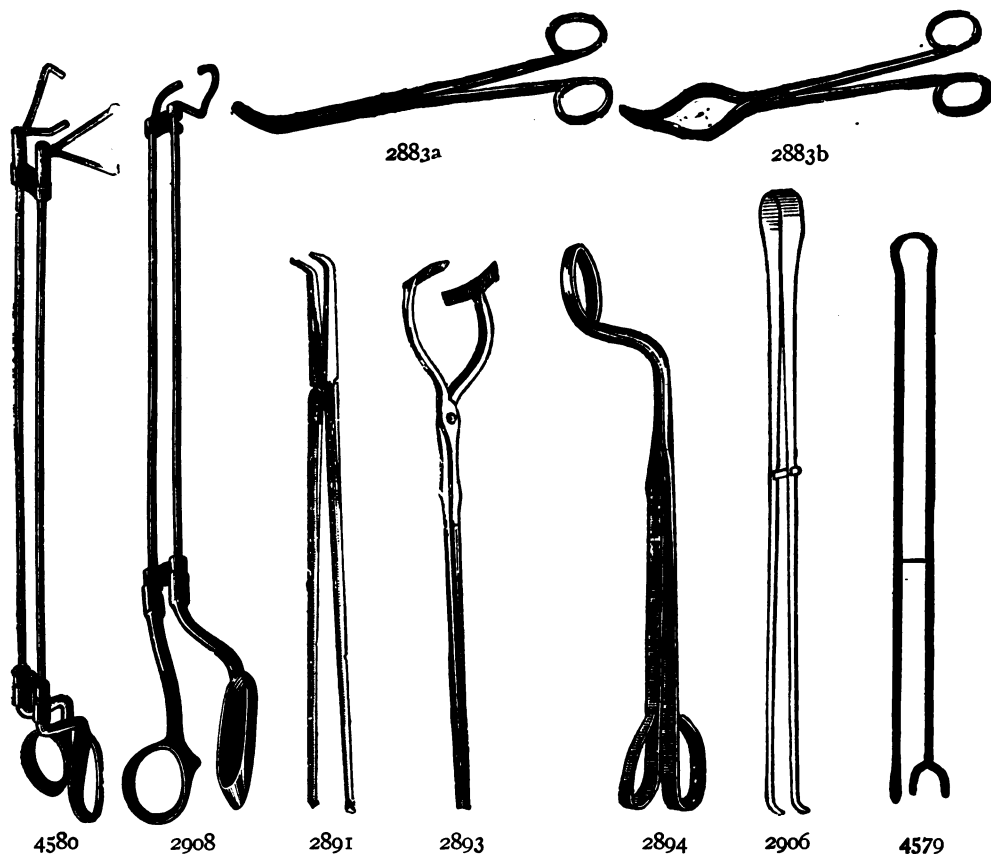
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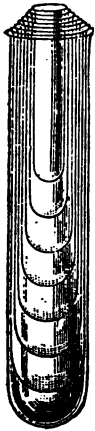
3149-50

- | | | |
|----------|--|-------|
| * 4777. | Support, for burette, of wood, with single wood cork-lined clamp... | .95 |
| * 4801. | Support, for funnel, wood, single..... | .80 |
| * 4802. | Support, for funnels, wood, double base, with 2 arms..... | 1.25 |
| * 4804. | Support, for funnels, wood, for 2 funnels..... | .70 |
| * 4812. | Support, Retort Stand, iron, with 3 rings, 1¼, 2 and 3 in. inside diameter, square base 7½x5½ in., and rod, 20 in. long by ⅜ in. diameter..... | .65 |
| —* 3146. | Support, Electrolytic, finely finished, glass rod, ring and clamp.... | 4.00 |
| —* 3148. | Support, Electrolytic, glass rod with 2 clamps..... | 4.00 |
| —* 3149. | Support, Electrolytic, for 6 sets platinum cylinders and spirals.... | 15.00 |
| —* 3150. | Ditto for 12 sets platinum cylinders and spirals..... | 25.00 |
- (For spirals and cylinders, see Platinum.)

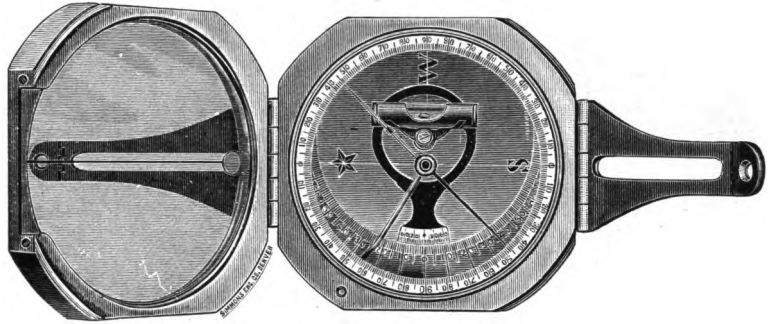
TONGS



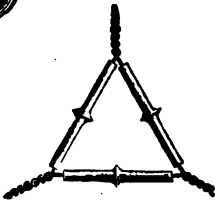
- * 2883. Tongs, Crucible, steel, nickel-plated, finest quality, length, 9 in.
 a. Single bent, \$.75. b. Double bent, \$.85.
2884. Tongs, Crucible, cheaper kind, 9 in., double bent.
 a. Nickel plated; b. Gun-metal finish \$.35
- * 2891. Tongs, Crucible, of wrought iron, single bent, for heavy crucibles.
 Length, 15 20 25 30 in.
 Each, \$.90 1.00 1.25 1.50
- * 2892. Tongs, Crucible, of wrought iron, double bent, 27 in. long. 1.75
- * 2893. Tongs, Crucible, of wrought iron, double bent, for lifting crucibles vertically. 2.00
- * 2894. Tongs, Crucible, of wrought iron, double bent, with elbow. 2.50
- * 2906. Tongs, Cupel, steel, curved ends. 1.00
2907. Tongs, Cupel, steel, rounded ends. 1.00
- * 2908. Tongs, Cupel, Judson's, steel 2.00
- * 4579. Tongs, Scorifier, spring steel. 1.00
- * 4580. Tongs, Scorifier, Judson's; to lift out scorifiers from rear, without disturbing those in front of muffle 2.00



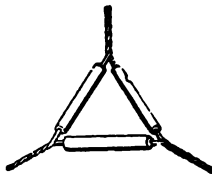
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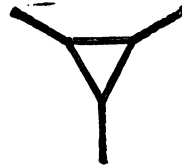
4958a



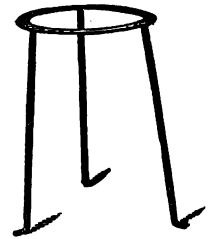
4965



4964



4963



4970

* 4872. Test tubes, of best German glass, well annealed, free of lead, each wrapped in paper.

Size,	3x3/8	4x1/2	5x1/2	5x3/8	6x5/8	6x3/4	7x7/8	8x1	10x1	12x1 in.
Dozen,	\$.15	.20	.25	.25	.30	.35	.50	.60	1.25	1.50
Gross,	1.20	1.65	2.00	2.30	2.75	3.00	4.50	6.50	10.00	12.00

○* 4958a. Transit, Brunton Patent Pocket Mine Transit. This instrument

has been especially designed to meet the requirements of civil and mining engineers, mine managers and geologists, its size and peculiar features adapting it to preliminary surveys, both underground and on the surface, taking topography, geological field work and, in short, any purpose for which a light pocket instrument is desirable, and where a moderate degree of accuracy will suffice. Price

\$25.00

Leather carrying case

2.00

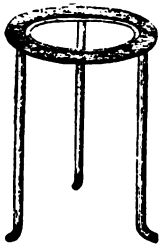
* 4963. Triangles, plain iron, small, medium or large. Dozen \$5.00

* 4964. Triangles, pipestem covered, small, medium or large. Dozen75

* 4965. Triangles, pipe stem, with projections on the sides permitting the crucible to receive the flame on nearly its entire surface, thus saving both gas and time; small, medium or large. Dozen 1.00

* 4970. Tripod, iron, heavier, Bunsen's style; outside diameter 4 1/2 in., height, 9 in.25

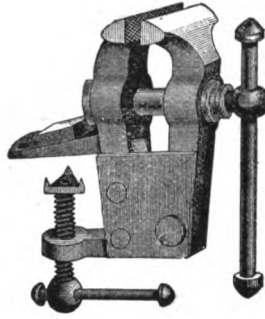
4971. Tripod, same style and size as No. 4970, but with 3 arms inside the ring30



4972



4973



7175



7176

- * 4972. Tripods, iron, plain, without rings, wide rim.

Outside diameter,	5	6¼	7¾	9½	12 in.
Each,	\$.25	.30	.35	.45	.65

- * 4973. Tripods, iron, with concentric rings.

Outside diameter,	5	6¼	7¾	9½	12 in.
With	2	3	4	5	6 rings.
Each,	\$.30	.40	.60	.80	1.00

- * 7175. Vises, with anvil, steel faced.

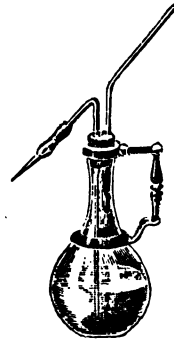
2	3	4	6 lbs.
\$1.50	1.60	1.75	2.35

- * 7176. Vises, hand, polished jaws.

4	5	6 in.
\$.60	.75	1.20



7181



7182

- * 7181. Wash Bottles; best ring neck flasks, fitted with rubber-stoppers and glass tubes.

Capacity,	¼ pint	½ pint	12 oz.	1 pint	24 oz.	1 qt.	½ gal.
Each,	\$.35	.40	.45	.50	.60	.75	1.00

Wash Bottles No. 7181 will be fitted with flexible delivery tube, if desired, at no extra cost.

- * 7182. Wash Bottles of any size fitted with handle at 40 cts. each extra charge.

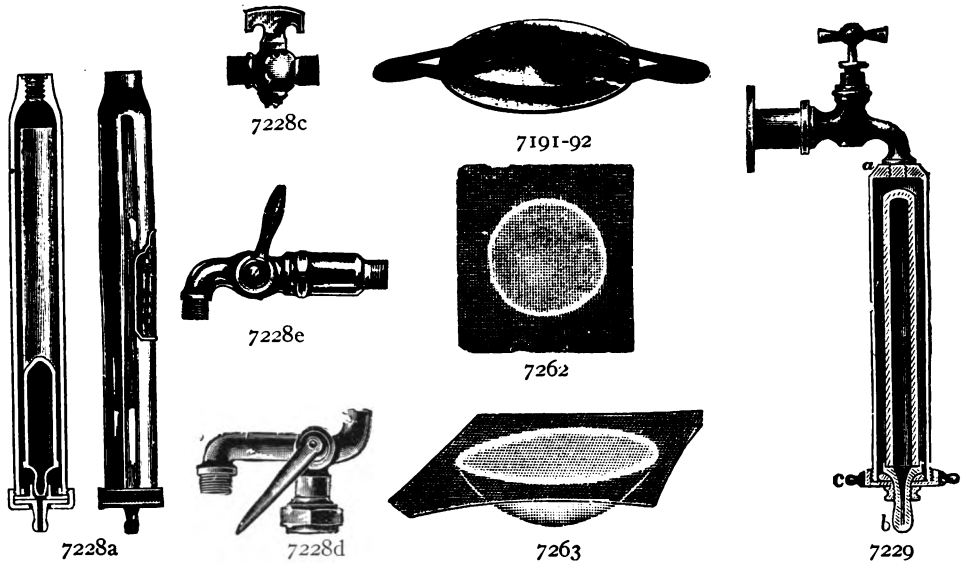
7189. Watch Glasses, best imported, well annealed, deep form, edges ground.

Diameter,	1	1½	2	2¼	2½	2¾	3	3¼	3½	3¾ in.
Per doz.,	\$.20	.25	.25	.50	.55	.60	.65	.70	.75	.80
Diameter,	4	4¼	4½	5	5½	6	6½	7	8	9 in.
Per doz.,	\$1.00	1.25	1.50	1.75	2.00	2.40	2.85	3.00	3.50	5.50

Watch glasses of 2 in. diameter come in 3 shapes, shallow, half-deep and deep, the latter selling for 20c. per dozen more than the other kinds.

7190. Watch Glasses, counterpoised, in pairs, accurately adjusted for analytical balance. 2½, 2¾ or 3 in. diameter. Per pair.....

\$.75



* 7191. Watch Glass Clamps, brass, nickel-plated; small, 15c; large, 20c.

* 7192. Watch Glass Clamp No. 7191, with 2 watch glasses, ground tight.
 Diameter of watch glasses, 2 2½ in.
 Per, set, with clamp, \$.30 .40

○* 7228. Water Filters, Pasteur-Chamberland system, the most efficient known, germ-proof.

* a. Style "Suspended" No. 1, nickered, 1 tube, 12 in., high..... \$8.00

* b. Style "Suspended" No. 3, nickered, 3 tubes, 13 in. high..... 20.00

* c. Stop-cock No. 1, or Pet, nickel-plated. Extra..... 1.00

* d. Stop-cock No. 2, or Union Connection, nickel plated. Extra..... 3.00

* e. Stop-cock No. 3, or Bent Nose Filler, nickel plated. Extra..... 2.00

By using the Union Connection with the Filter, unfiltered water can be drawn when desired.

f. Extra Porcelain Filter Tubes. Each..... 1.25

— ○* 7229. Water Filters, Berkefeld's, germ-proof.

○* No. 5. Gives one gallon of filtered water in 3 to 4 minutes by ordinary pressure of 40 pounds; length, 9 inches; diam., 1½ inches... 3.50
 Extra porcelain filter tubes. Each..... 1.65

○ Similar to No. 5, but shorter and wider; length 6 in.; diameter, 2¼ inches 4.50
 Extra porcelain filter tubes. Each..... 1.25

Prices do not include stop-cock.

7261. Wire gauze, Iron, proper thickness of wire and mesh for use on retort stands, etc., in squares.

Size,	4	5	6	8 in. sq.
Each,	\$.04	.06	.08	.15

* 7262. Wire Gauze, tinned iron, with flat asbestos centre.

Size,	4	5	6 in. sq.
Each,	\$.12	.15	.20

* 7263. Wire Gauze, tinned iron, with hemispherical asbestos centre.

Size,	4	5	6	8 in. sq.
Each,	\$.35	.40	.45	.55

CHEMICALS

Test Lead, freer from silver, gold, zinc or manganese, than any other test lead known, guaranteed purest in the market, fine, medium coarse.

Per lb.,	10 lb. lot \$.18	100 lb. lot .15	1,000 lb. lot .13	ton lot .11
Boneash , best French, for cupels, Per lb.		10 lb. lot \$.10	100 lb. lot .07	barrel lot .06
Litharge , pure, free from silver, Per lb.,		10 lb. lot \$.18	50 lb. keg .16	100 lb. keg .15
Boneash , for smelting and refining, Per lb.,		100 lb. lot \$.10	barrel lot .06	5 barrel lot .05
Soda Bicarbonate , Per lb.,		10 lb. lot \$.05	keg, .02½	barrel lot .02¼
Soda Carbonate , dry, pure, fine powder, Per lb.,		10 lb. lot \$.14	keg .12	barrel lot, .10
Soda Carbonate (soda ash) , Per lb.,	10 lb. lot \$.05	keg .04½	barrel .04	cask lot .03
Borax , pure, cryst. or powder, Per lb.,		10 lb. lot. \$.12	keg .09	barrel lot .07
Nitre , soda, Per lb.,	10 lb. lot \$.08	keg .07	barrel .06	ton lot .05
Potassium Cyanide , cryst., purest in the market, over 98 per cent. Per lb.,	10 lb. lot \$.40	100 lb. lot .30	500 lb. lot .27	1000 lb. lot .25
Ditto, com. for fusions,	.35	.28	.25	.23
Argols, Powder , Per lb.,		10 lb. lot \$.10	keg .08½	barrel lot 07½
Acid Sulphuric , most concentrated, 66° B., per lb.....			9 lb. bottle \$.05	1 carboy .02½ 10 carboys .02¼
Ditto, strictly chemically pure, per lb.....			.10	.06½ .06
Acid Nitric , concentrated, 40° B., per lb.....			.09	.07 .06½
Ditto, strictly chemically pure			12. .08½	.08
Acid Muriatic , concentrated, 22° B., per lb.....			.05	.02½ .02¼
Ditto, strictly chemically pure, per lb.....			.10	.06½ .06

For General Chemicals see our Chemical list.

ASSAY OUTFIT FOR MINE

1 Button Balance.
1 Pulp Balance.
1 Set gram. Weights, 50 gram. to 1-10 milligramme.
1 Set Assay ton Weights, 1 assay to 1-20 assay ton.
1 Bosworth Muffle Furnace.
6x9x15 Muffles.
1 dozen Annealing Cups.
1000 2½ inch Scorifiers.
400 10 gram. Crucibles.
1 Bosworth Crusher.
1 Buckboard and Muller.
2 pair Scorifier Tongs.
1 pair Cupel Tongs.
2-12 hole Scorifier Moulds.
2-25 hole Scorifier Mould.
1-3 hole Crucible Mould.
1 1½ inch Cupel Mould.

1 pair Slag Pincets.
1 pair Button Pliers.
1 Magnifying Lens.
1 Pipette, 25 c. c.
1 Cylinder, 50 c. c. graduated.
1 Burette, G. S., 50 c. c. in 1-10ths.
1 Color Plate.
12 feet Rubber Tubing.
½ dozen Evaporating Dishes.
¼ dozen Casseroles.
½ dozen Porcelain Crucibles.
1 Camels'-hair Brush.
3 Camels'-hair Pencils.
1 Buckboard Brush.
½ dozen 5-inch Sand Baths.
1 Copper Water Bath.
1 Anvil Slagging.
1 Dangler Lamp (Gasoline.)
1 Mortar, Wedgewood.

ASSAY OUTFIT FOR MINE—Continued

1 Magnet, 5 inches.	½ dozen Funnels.
1 Set Cork Borers.	2 packs Filter Paper.
2 Sieves, 60 and 80 mesh.	1 Lead Measure.
3 Clay Triangles.	1 Graduate, 4 oz.
1 Tripod.	1 Test Tube Rack.
2 Slag Hammers.	1 doz. Test Tubes.
1 Sampler and Scoop.	1 Set Reagent Bottles.
1 Plattner's Blow-pipe.	100 lbs. Granulated Lead, c p.
1 3-ring Stand.	25 lbs. of Lead Flux.
2 Spatulas.	10 lbs. Soda Bicarbonate.
1 Burette Stand.	100 lbs. Boneash.
1 Funnel Stand.	25 lbs. Litharge.
5 grams. Platinum Foil and Wire.	5 lbs. Borax Glass.
1 Diamond Mortar.	5 lbs. Argols.
1 6-burner Alcohol Lamp.	1 lb. Rolled Lead.
1 4-oz. Glass Lamp.	1 oz. Silver Foil, c. p.
2 Nests Beakers, No. 1 to 6.	4 lbs. Ammonia Water, strong.
½ dozen Beaker Covers.	9 lbs. Sulphuric Acid, c. p. conc.
½ dozen Copper Flasks.	7 lbs. Nitric Acid, c. p. conc.
½ dozen Parting Flasks.	12 lb. Muriatic Acid, c. p. conc.
2 Wash Bottles, complete.	½ lbs. Cyanide Potash, pure.
1 ½ litre Flask.	3 sheets Copper Foil, c. p.
1 lb. Glass Tubing.	1 box Blank Labels, gummed.

This gives a good supply of the essential apparatus and re-agents necessary for gold, silver, copper and lead essays.

We furnish above list of apparatus and chemicals with a \$100.00 Button Balance, and a \$30.00 Pulp Balance, boxed ready for shipment, for..... **\$350.00**

With a Button Balance (\$175.00) and Pulp Balance \$50.00), and a large Buck-board; the outfit will be delivered f. o. b. New York, for..... **\$450.00**

OUTFIT FOR COPPER ASSAYS

By Cyanide Potassium Method.

1 Pulp Balance.	½ dozen 12-oz. Beakers.
1 set Gram. Weights, 50 grams.	1 Dangler Blast Lamp, gasoline.
2 pair Pincets.	1 8-oz. Alcohol Lamp, glass.
2 Spatulas.	½ lb. Glass Rods and Tubing.
1 ½ gallon Iron Mortar.	2 Burettes, Glass Stopcock, graduated in 1-10.
1 80 mesh Sieve.	1 Burette Float.
1 dozen Copper Flasks.	1 3-ring Stand.
¼ dozen 3½-inch Funnels, Bunsen's.	2 Funnel Stands, for 4 funnels.
½ dozen Sand Baths.	1 Sampler and Scoop.
1 10 c. c. Cylinder.	1 Buckboard and Muller.
4 10 c. c. Pipettes.	6 lb. Muriatic Acid, com'l.
1 8-oz. Graduate.	7 lbs. Nitric Acid, com'l.
½ dozen 8-oz. Beakers.	7 lbs. " " c. p.
9 lbs. Sulphuric Acid, com'l.	5 lbs. Sheet Zinc, cut in strips, com'l.
8 lbs. Ammonia Water, strong.	1 H ₂ S Apparatus, small.
1 lb. Cyanide Potash, pure.	2 Empty Bottles.
6 sheets Copper Foil, c. p.	6 feet Rubber Tube.
½ gallon Alcohol.	3 Pinchcocks.
½ gallon Distilled Water.	1 box Labels, blank.
½ dozen packages Gray Filter Paper, 7 inches.	2 books Litmus Paper.
½ dozen packages S. & S. Filter Paper, 18½ c. m.	1 book Labels, chemical.
1 lb. Granulated Zinc, pure.	½ dozen Casseroles, No. 3.
	1 Color Plate, porcelain.

Boxing and Cartage ,complete F. O. B. New York **\$85.00**

ASSAY OUTFIT FOR PROSPECTORS

1 Portable Button Balance and Weights.	1 package Filter Paper.
1 Pulp Balance and Weights.	1 Wash Bottle.
1 Furnace.	1 Button Brush.
2 Muffles.	6 Parting Flasks.
200 Scorifiers.	1 Tripod.
50 Crucibles.	6 Annealing Cups.
1 Quart Mortar and Pestle (iron).	2 Hammers.
2 pair Tongs.	4 lbs. Litharge.
1 Magnifying Lens.	5 lbs. Soda Bicarb.
1 Lead Mould.	1 lb. Argols.
1 Cupel Mould.	1 lb. Muriatic Acid, c. p.
1 Magnet.	1 lb. Nitric Acid, c. p.
3 Pair Pliers.	10 lbs. Bone Ash.
1 Spatula.	2 lbs. Borax Glass.
Glass Rod and Tubes.	¼ oz. Silver Foil, c. p.
1 glass Alcohol Lamp.	½ lb. Rolled Lead, c. p.
1 Sieve, 60 mesh.	10 lbs. Granulated Lead, c. p.
3 Beakers and Covers.	1 pint Alcohol.
1 Blow-pipe, Plattner's.	2 lbs. Lead Flux.
3 Funnels.	
Boxing and Cartage, complete F. O. B. New York	\$125.00

PROSPECTORS' BLOW-PIPE OUTFIT

1 Jeweler's Blow-pipe.	1 H. S. Magnet, 3 inch.
1 Alcohol Lamp.	1 piece Iron Wire. Platinum wire and holder.
1 Magnifying Lens, double.	3 Carbon Sticks.
1 Porcelain Mortar, 2¼ inch.	1 package Filter Paper.
2 " Crucibles.	2 drams Ferrous Sulfate.
2 " Crucible Covers.	2 " Borax Glass.
1 Funnel, glass, 2 inch.	2 " Oxalic Acid.
1 dozen Test Tubes, 3 inch.	2 " Sodium Carbonate, dry.
1 dozen Glass Tubes and Rods, assorted.	1 oz. Sulphuric Acid, c. p. conc.
3 small Beakers, 0 to 000.	1 oz. Muriatic " "
1 pair Slag Pincets.	¼ lb Nitric " "
1 Spatula, 3 inch.	¼ lb. Ammonia, strong.
1 piece Sheet Zinc.	4 ozs. Alcohol.
1 " Copper Wire.	2 ozs. Mercury.
1 " Tin Foil.	2 ozs. Gran. Lead.
1 Chamois Skin.	2 drams Carbon Potash.
Packed in fine wooden carrying case with metal handle.....	\$10.00
Cornwall's Blow-pipe Analysis, extra	2.50
Plattner's Blow-pipe Outfit. As used in Columbia College; the whole in elegant, velvet-lined, polished mahogany case, with handle and lock, for traveling	\$38.00

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